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V G

L. P.
Boilers

Richardson Boilers

steam
and hot
water



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1927

Richardson Boilers

Steam and Hot Water

End Feed Sectional

Side Feed Sectional

Round Sectional



Richardson & Boynton Co.

ESTABLISHED 1837

31 West 31st Street, New York

Boston
51 Portland Street

Philadelphia
1107 Arch Street

Chicago
66 East Lake Street

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Our works, as shown above, are so situated as to benefit by two trunk lines which insures customers prompt shipments and efficient service to all parts of the country

Richardson Boilers

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Principles of Construction

THE "RICHARDSON" BOILERS, as shown herein, are made in three distinct types—ROUND SECTIONAL BOILERS, SIDE-FEED SECTIONAL BOILERS, END-FEED SECTIONAL BOILERS—each type adapted for steam heating and hot water heating.

We manufacture these boilers in different types, because there is a demand for each to suit various conditions and requirements, and they differ in shape rather than in any principle of construction.

After the most exacting tests and many years of actual use, we are able to place this line before the public, with the assurance that they are the best boilers made.

They will appeal to those looking for quality and merit, and who do not wish to be annoyed by the difficulties which arise from heating boilers of poor construction or quality.

The user is interested in a satisfactorily heated house, and an even temperature throughout that portion of the year when it is necessary to keep his heating plant in operation; with an economical consumption of fuel, and a minimum amount of attention.

A little increased expense in first cost, to secure a heater of proper size and capacity, is not to be considered in comparison with a cheaper article, which is extravagant in its fuel consumption—the increased coal consumption more than making up the difference in any one season.

The principle on which all of our "RICHARDSON" Boilers are constructed, is the placing of a large amount of heating surface in direct contact with the fire. This surface backed by water in small quantities heats rapidly, and consequently circulates rapidly, thus passing a constant stream of water over the heating surfaces, and absorbing the heat units as they are given off by the fire, producing a boiler of a very high efficiency.

A careful examination of the illustrations shown on the following pages will further demonstrate this fact, and it will be universally agreed that to place two vessels of water over a fire, one vessel containing twice as much water as the other, that the smallest quantity will be heated first.

The advantage of our construction over boilers with large waterways over the fire, is that when once the water temperature is raised to the proper point, the fire can be controlled and the temperature maintained, long before the water in the other boiler is properly heated; hence a big saving in fuel.

Accessibility to every part of the boiler, which makes it possible for the person operating the boiler to keep it in prime condition, is an essential feature, and one which has received a great amount of attention in the manufacture of our goods.

10 90-13502 +CF

Richardson Boilers

Methods of Manufacturing

HAVING been manufacturers of cast-iron house heating apparatus for many years, we have naturally benefited by our vast experience, until now we have reached the highest point of perfection.

We have found there is no economy or satisfaction to be derived from the use of poor material; consequently, we confine our purchases to the highest grades of iron and coke which are obtainable, and the iron accepted by our foundry must show the proper chemical analysis for the kind of castings it is called upon to furnish.

Every attention is paid to proper temperatures when pouring iron for boiler sections, in order that each section when finished will stand the high hydrostatic pressure to which we test it. Each section is tested under a heavy pressure of water, carefully reamed and machined, and the sections assembled and set up in the various sizes of boilers. When they are carefully set up they are subject to still another hydrostatic test, to insure all joints and connections being tight and perfect in every way. This is a practice which is very exceptional.

The boiler sections are connected one to the other by machine-cut tapered *cast-iron* nipples, of the same kind of metal as the section. The use of any other material has been demonstrated a complete failure. The use of the same material in the boiler sections and nipples insures the user against unevenness in either contraction or expansion, with the ultimate possibilities and probabilities of cracks and leaks.

Boilers Manufactured in Units

ALL of our boilers are manufactured on the sectional unit basis; consequently, there is a very large selection of sizes, and it affords a very simple and much appreciated method of adding additional capacity to a boiler already installed, where the amount of heating to be done has been enlarged.

Richardson Boilers

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Ratings

“RICHARDSON” BOILERS are rated in accordance with the results obtained after many exhaustive tests conducted at our manufacturing plant, and the thousands in actual and successful use for many years is ample demonstration of their correctness.

Our ratings have never been changed. Unfortunately, however, many manufacturers in the last few years have increased ratings to a considerable extent, until they now show what has aptly been termed “Printer’s Ink” or “Commercial Ratings,” and a house owner selecting a boiler which the printed ratings indicate should be ample for his purpose, finds himself called upon to expend large sums for fuel to make up for the deficiency in capacity, and on account of the false ratings has really paid for the boiler a sum far in excess of its actual worth.

Guarantee

Every “RICHARDSON” Boiler is sold under a guarantee as to its perfection in manufacture, and its ability to carry the rating shown in our printed matter, provided that a sufficient amount of radiation is installed, the piping system properly run, and the boiler connected to a flue of sufficient size and draft for the size of the fire box.

Boiler ratings are based

First: On the efficiency of the boiler, that is, the per cent. of the heat units released from the burning fuel that are absorbed by the water in the boiler.

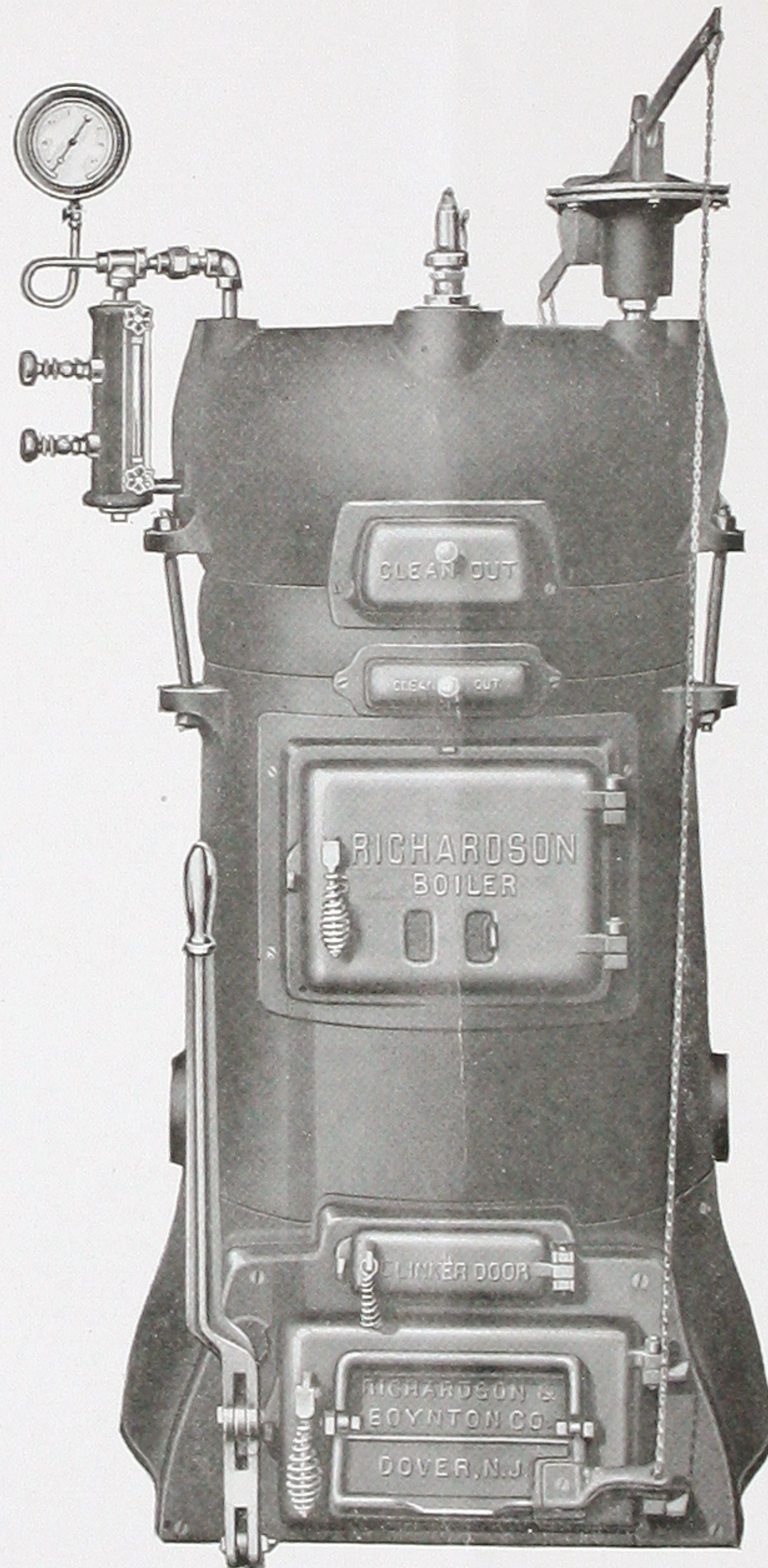
Second: The rate of combustion, that is, the amount of fuel that is burned per square foot of grate per hour. This rate in small boilers for house heating should not exceed four to five pounds per square foot. An increased rate of combustion, of course, largely increases the capacity of the boiler; but at the same time increases the cost for fuel.

Coal

“RICHARDSON” Boilers can be furnished with grates to burn the small sizes of coal, when so ordered.

Richardson Boilers

*Round
Sectional
Series*



Round Boilers for Steam

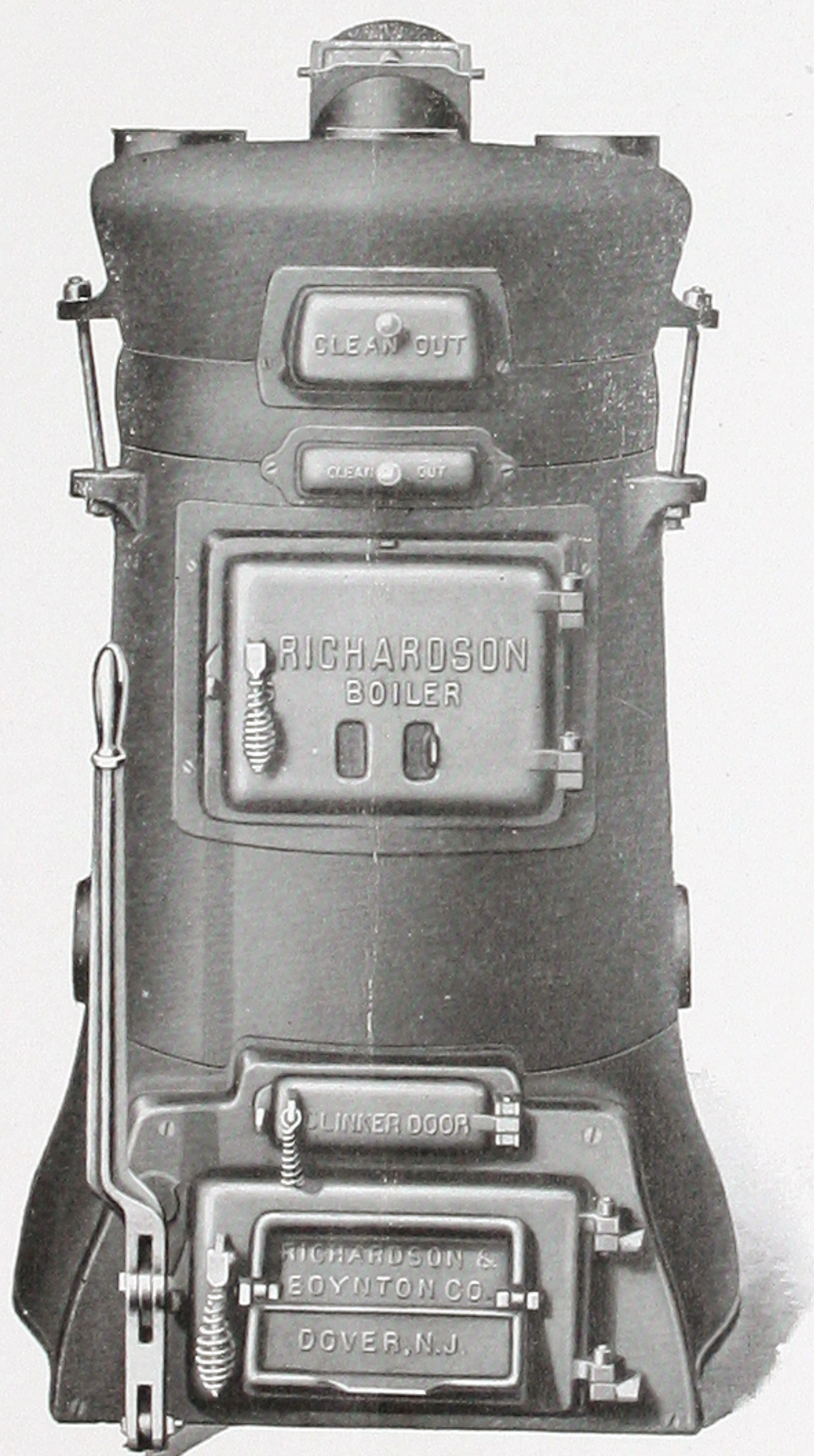
“**R**ICHARDSON” Round Boilers are particularly well adapted for small buildings and residences, because they are very easy to operate; they are fitted with all mechanical devices necessary for proper control, and are complete in every detail. They are giving perfect satisfaction because they are properly proportioned, conservatively rated, and, consequently, economical in fuel.

[See pages 9 to 11]

Richardson Boilers

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*Round
Sectional
Series*



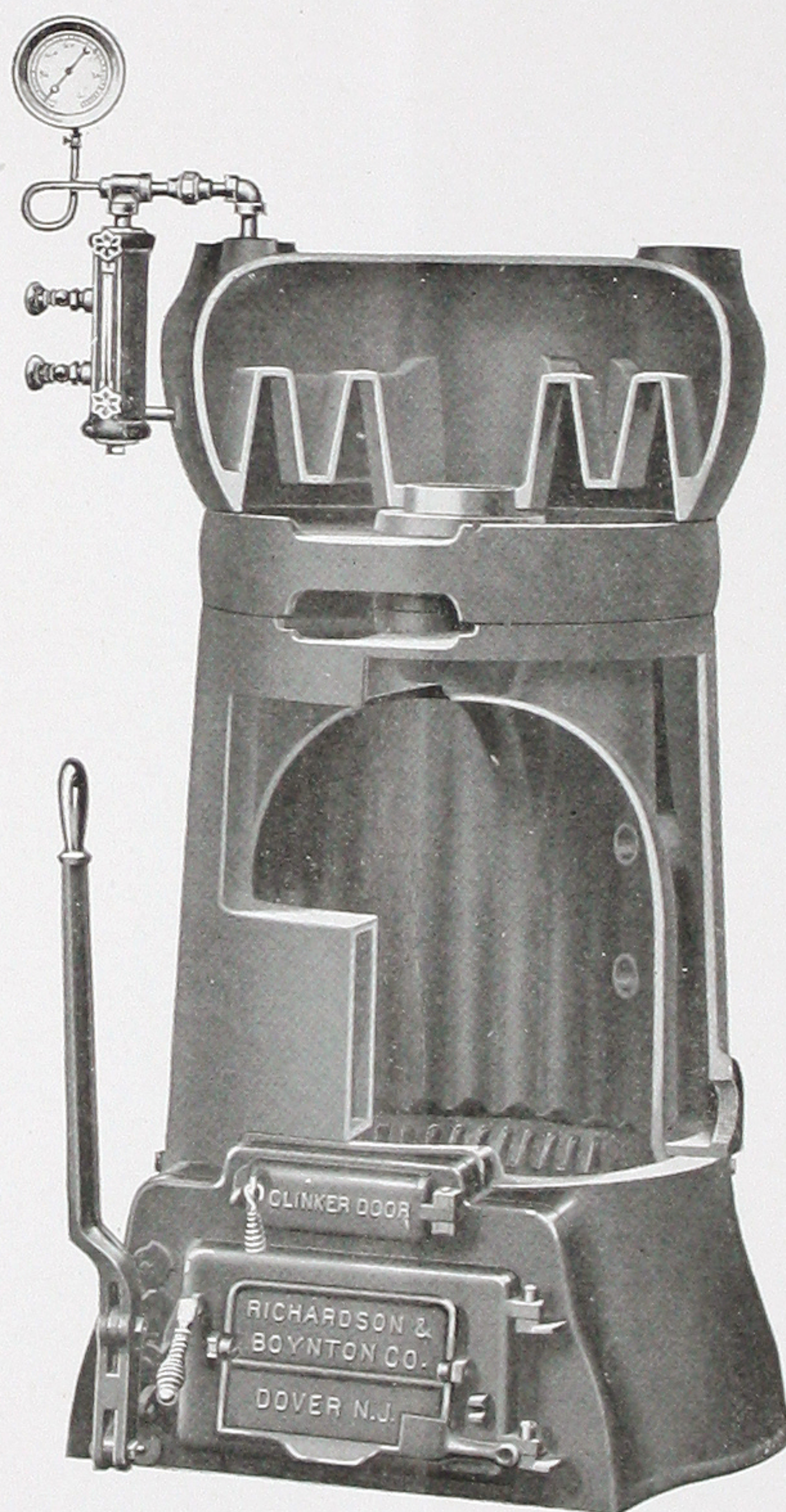
Round Boilers for Hot Water

“**R**ICHARDSON” ROUND WATER BOILERS have a special dome section for water heating, and all the water ways throughout the boiler are small, producing a rapid circulation of water over the heating surfaces, and absorbing the heat units as they are given off from the fire and heated gases. All the heating surfaces are within the boiler and surrounded by water passages.

[See pages 9 to 11]

Richardson Boilers

*Round
Sectional
Series*



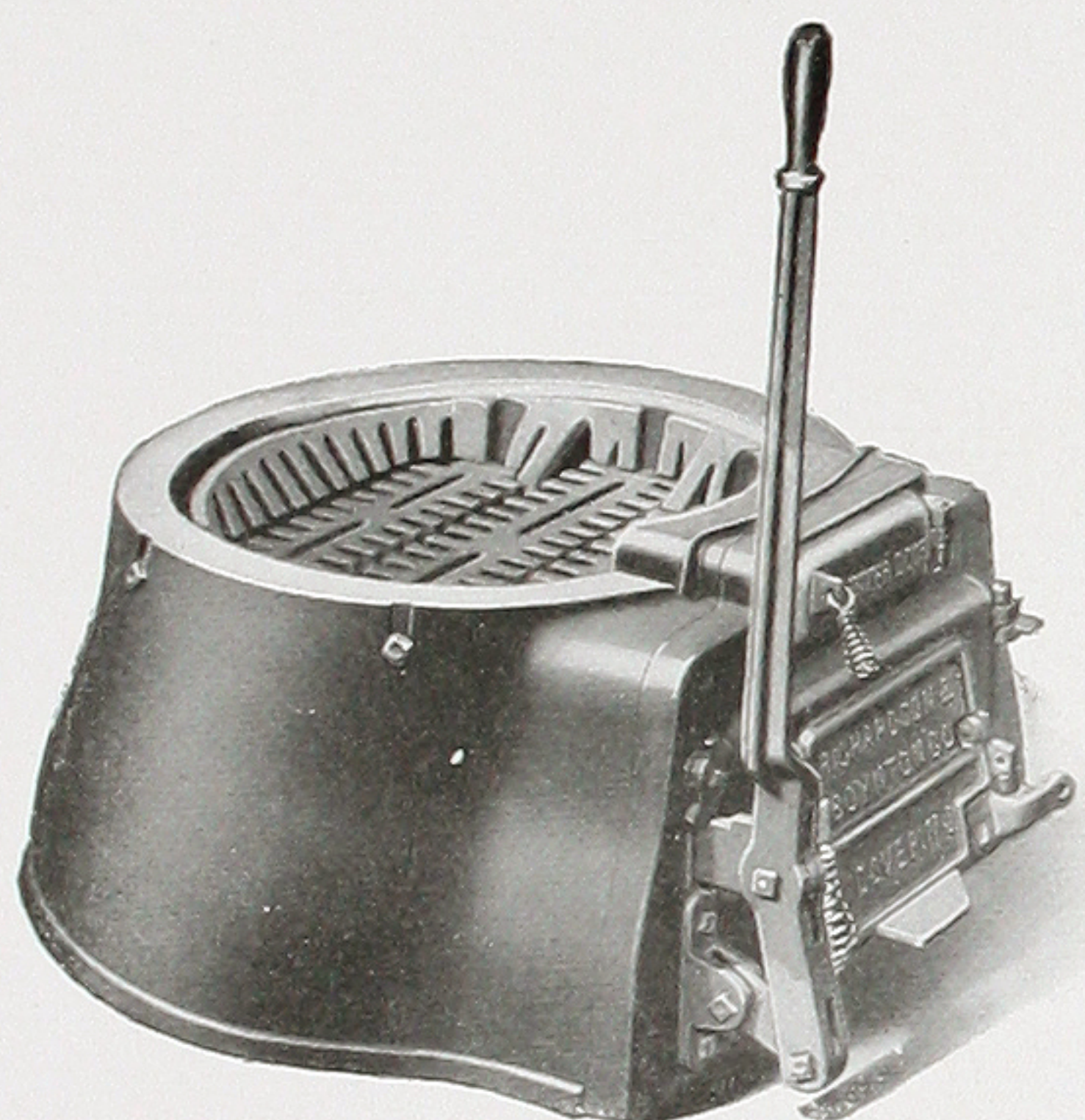
Sectional View of Round Steam Boiler

INTERIOR VIEW of the "RICHARDSON" Round Boiler, showing corrugated inside surface of firepot, high combustion chamber and deep fire to permit of a low rate of combustion, and attendance at long intervals. The firepot section is provided with two openings in the back for inserting a coil in the fire for heating water for domestic purposes. The dome, or top section, adds greatly to the efficiency and economy of these boilers on account of the large surfaces in contact with the heated gases.

[See pages 9 to 11]

Richardson Boilers

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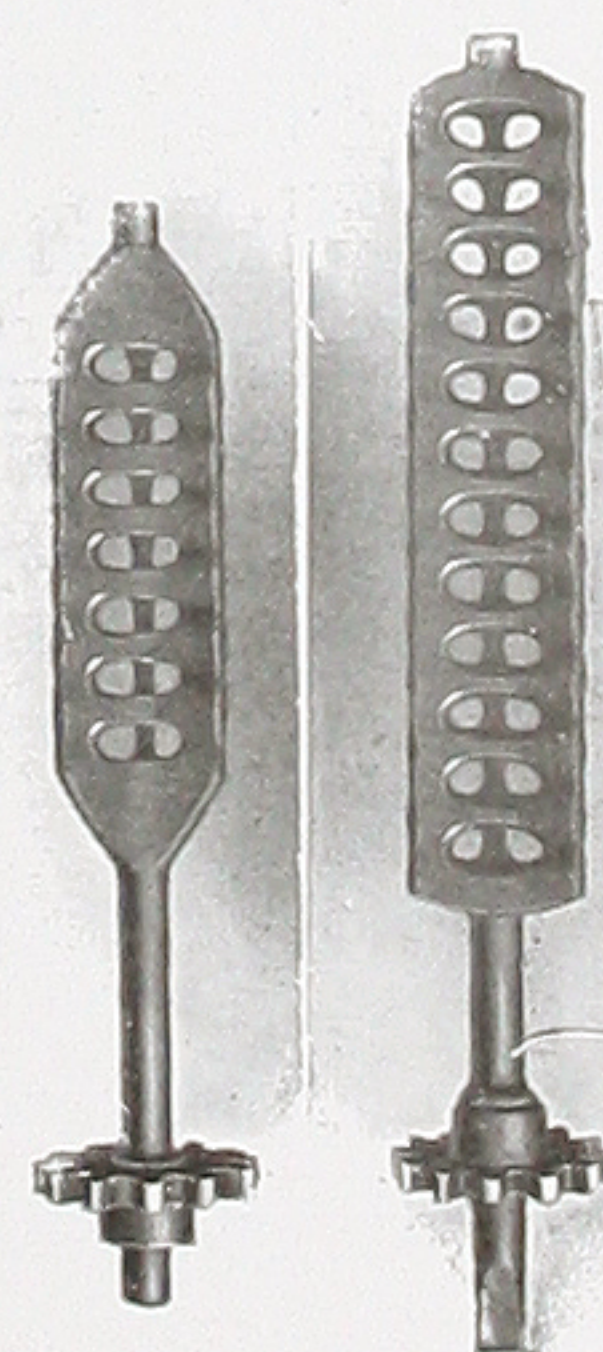


Base, with Grates as shown or
Triangular Bars

Details of Construction

“RICHARDSON” ROUND BOILERS for Steam and Hot Water are made up of several parts. The lower, or base section, is fitted with flat shaking and dumping grate bars, as shown. The operation of these bars is controlled from outside by means of a lock plate which permits the bars being shaken, dumped, or locked in position, as

required. These boilers can also be fitted with our celebrated “PERFECT” Revolving Triangular Bars, if so ordered. The ash pits are fitted with large doors for the easy removal of the ashes, and an air inlet butterfly damper for supplying oxygen to the fuel, this damper being operated from the automatic damper regulator of Steam Boilers and with a ratchet on Water Boilers. Where the flat grates are used the ash pits are also fitted with a large clinker or slicing door.



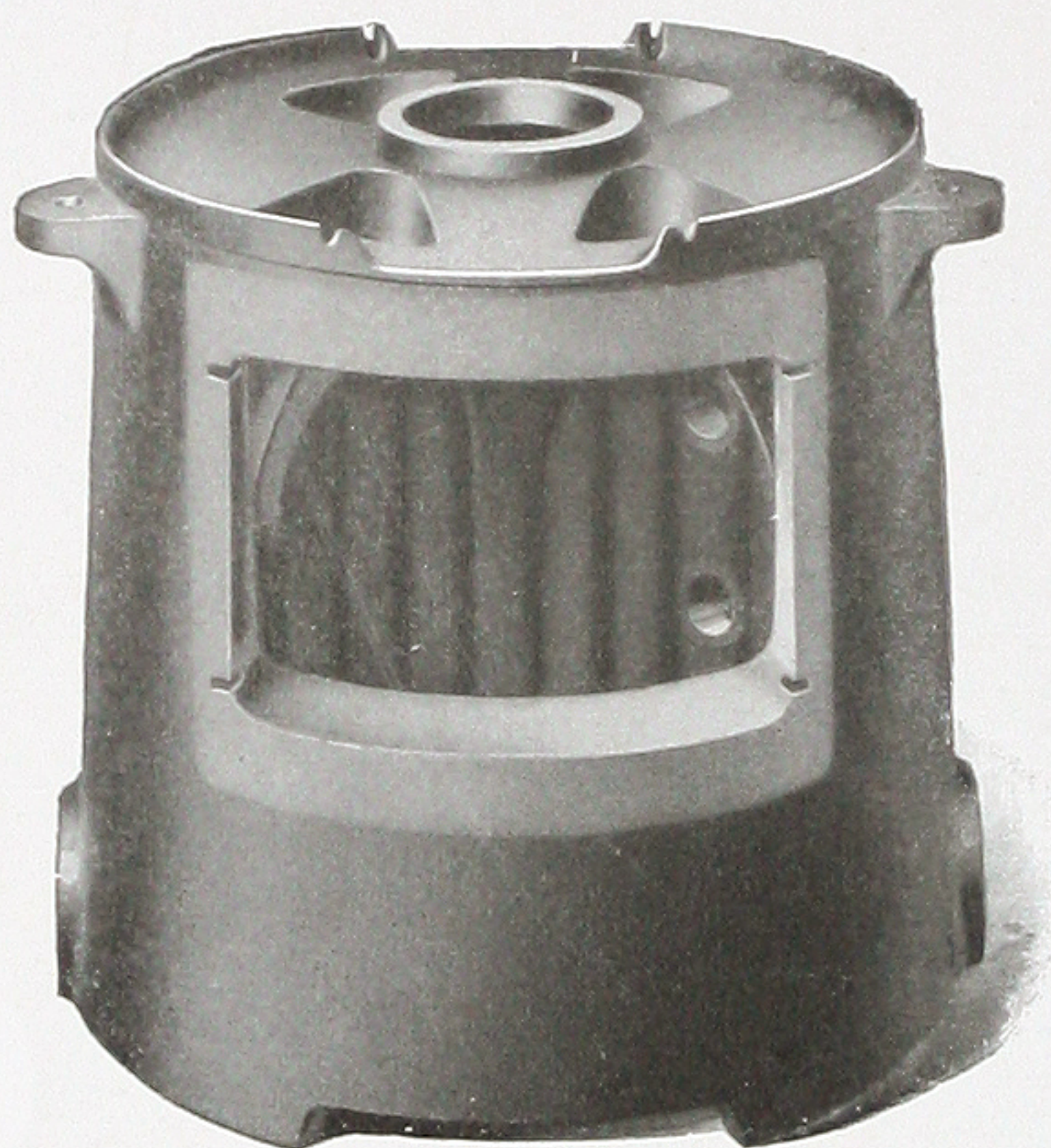
Perfect Triangular Bars



THE connection between the firepot section and the intermediate section, and between all sections in “RICHARDSON” Boilers is made with an extra heavy machine-cut tapered cast-iron nipple, fitted into a tapered opening in the section, making an iron to iron joint, without the use of any lead or packing, and absolutely tight. These nipples are made of the same metal as the section, the use of which insures against unevenness in expansion or contraction.

Richardson Boilers

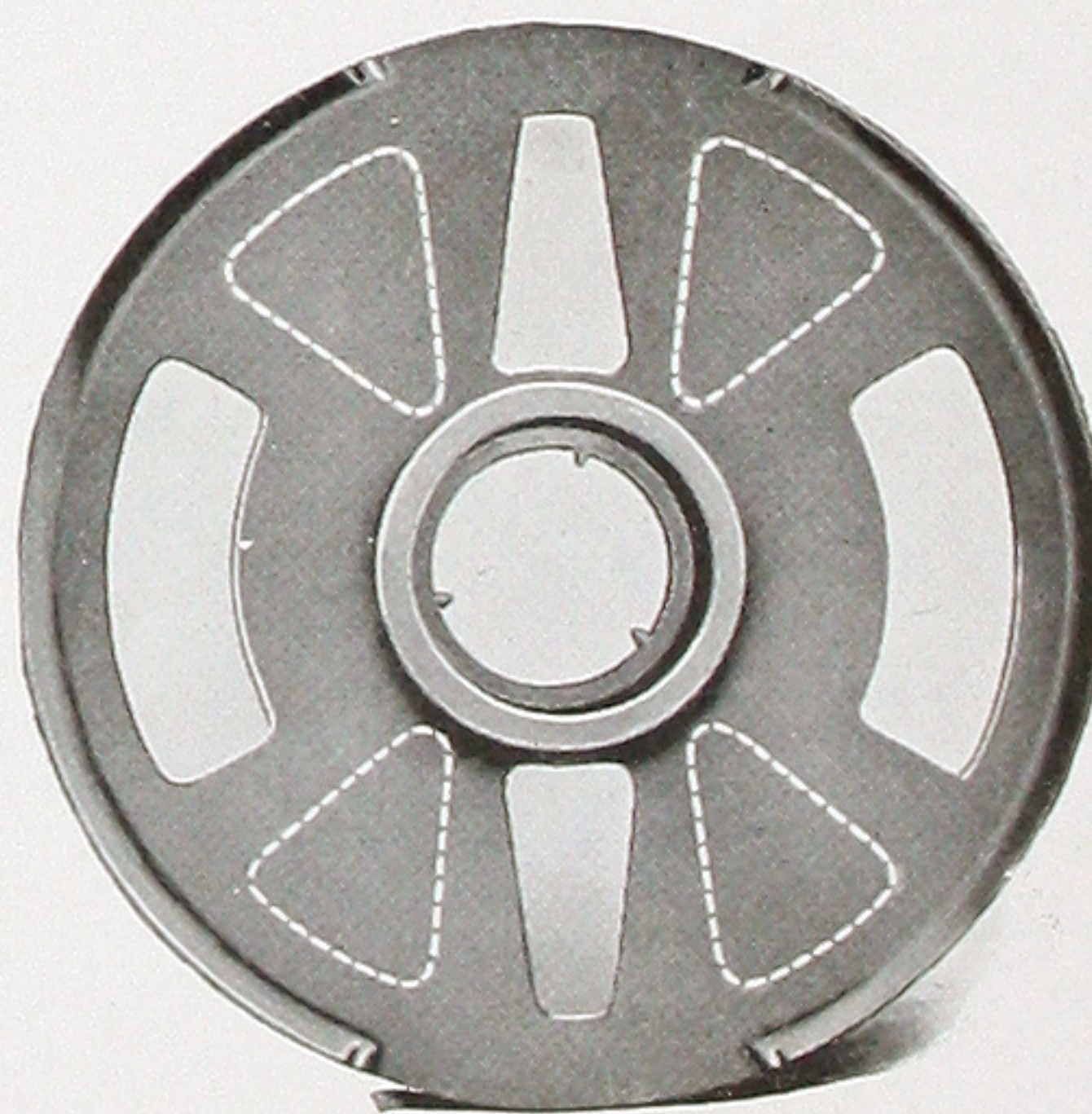
Details of Construction



Fire Pot Section

ABOVE the ash pit comes the firepot section, heavily corrugated on the inside and with overhanging surfaces or arms over the fire. The firepot is deep, so that the fire can be run at a low rate of combustion and require attention at only long intervals. These sections are also fitted with two openings at the rear so water can be heated for domestic purposes from a coil in the firebox.

The flue openings in the intermediate sections are arranged so the fire travel is staggered, the opening in one section going below the heating surfaces in the section above; consequently, there is no waste heat, the products of combustion being constantly in contact with heating surfaces backed by water.



Intermediate Section

The "RICHARDSON" Boilers are neat and attractive in appearance, and are designed to produce the most heat, with the least expense for fuel, and a minimum amount of attention.

Richardson Boilers

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Ratings and Dimensions Round Steam and Water Boilers

Pages 6 to 10

Size	Rating, Water	Rating, Steam	Height of Water Line Inches	Diameter of Grate Inches	Height of Boiler Inches		Tappings Flow and Return Inches	Smoke Pipe
	WATER	STEAM			STEAM	WATER		
161	400	250	45 $\frac{3}{8}$	16	50	47 $\frac{1}{2}$	2-2	7
162	425	275	49 $\frac{3}{8}$	16	54	51 $\frac{1}{2}$	2-2	7
190	500	300	42 $\frac{1}{2}$	19	47 $\frac{1}{2}$	45 $\frac{1}{4}$	2-2 $\frac{1}{2}$	8
191	575	350	46 $\frac{1}{2}$	19	51 $\frac{1}{2}$	49 $\frac{1}{4}$	2-2 $\frac{1}{2}$	8
192	625	375	50 $\frac{1}{2}$	19	55 $\frac{1}{2}$	53 $\frac{1}{4}$	2-2 $\frac{1}{2}$	8
221	750	450	48 $\frac{1}{4}$	22	53	50 $\frac{1}{2}$	2-2 $\frac{1}{2}$	9
222	825	500	52 $\frac{1}{4}$	22	57	54 $\frac{1}{2}$	2-2 $\frac{1}{2}$	9
223	900	550	56 $\frac{1}{4}$	22	61	58 $\frac{1}{2}$	2-2 $\frac{1}{2}$	9
251	1025	625	49 $\frac{1}{2}$	25	54 $\frac{1}{4}$	52	2-3	10
252	1100	675	53 $\frac{1}{2}$	25	58 $\frac{1}{4}$	56	2-3	10
253	1200	725	57 $\frac{1}{2}$	25	62 $\frac{1}{4}$	60	2-3	10
281	1350	875	51	28	55 $\frac{3}{4}$	53 $\frac{1}{4}$	2-3 $\frac{1}{2}$	10
282	1550	950	55	28	59 $\frac{3}{4}$	57 $\frac{1}{4}$	2-3 $\frac{1}{2}$	10
283	1675	1025	59	28	63 $\frac{3}{4}$	61 $\frac{1}{4}$	2-3 $\frac{1}{2}$	10

Series	16	19	22	25	28
Diameter	26 $\frac{1}{2}$ in.	30 $\frac{1}{4}$ in.	33 $\frac{1}{4}$ in.	36 in.	40 in.

OUR ratings provide that all piping (mains, risers and returns), in addition to the direct radiation to be used, shall be figured as radiating surface, in estimating the size boiler necessary.

Also allowance made for indirect, direct-indirect and coil radiation, and any unusual conditions.

See Guarantee on Page 5

Richardson Boilers

*Side Feed
Sectional
Series*



"Richardson" Sectional Water Boiler —
18, 22 and 30 Series

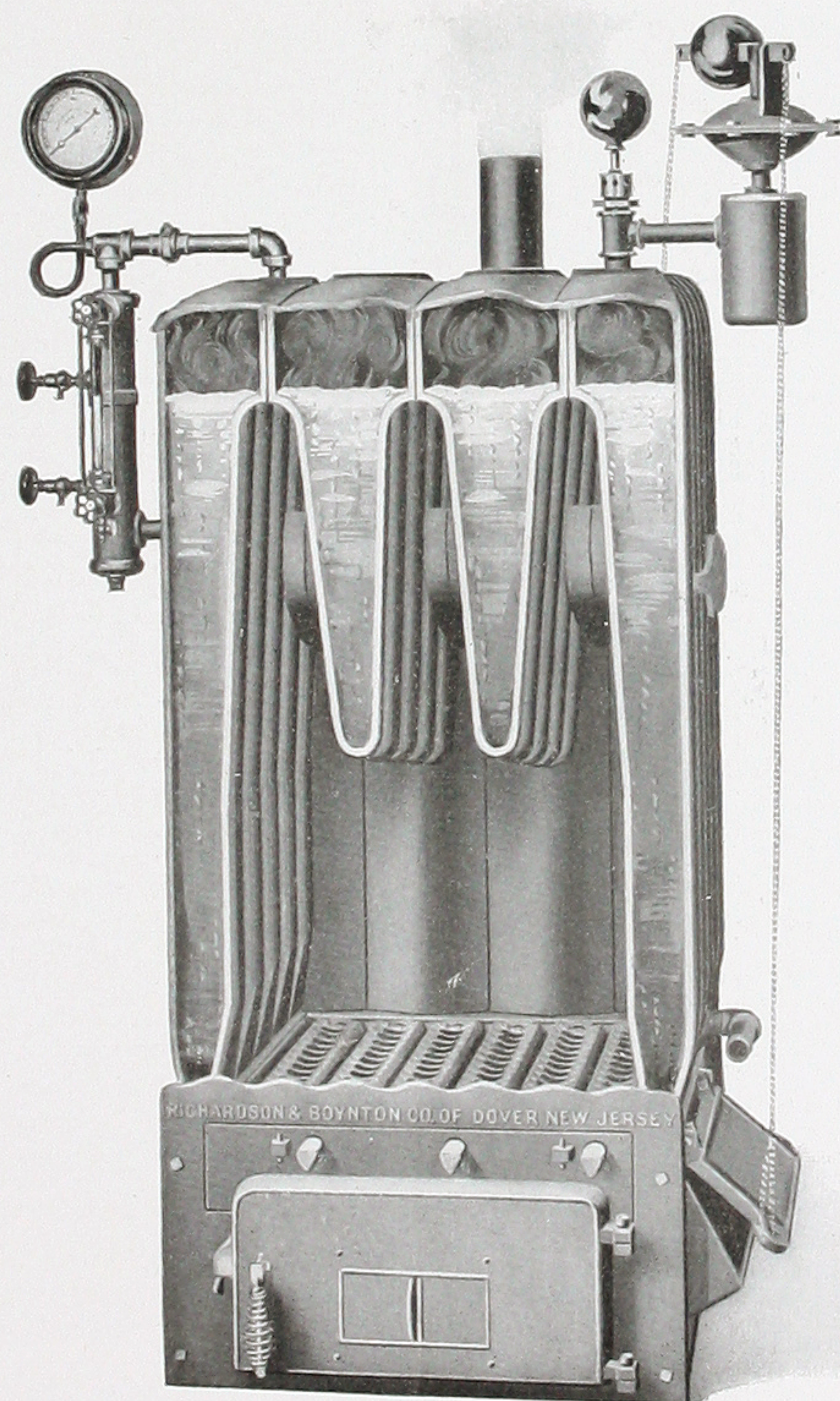
THE "RICHARDSON" Side-feed Sectional Boilers are adapted both for steam and hot water heating. They have a large amount of heating surface and deep fire chambers; consequently, they are powerful, quick-acting, durable and economical; are most easy to operate, and give universal satisfaction.

[See pages 16 and 17]

Richardson Boilers

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*Side Feed
Sectional
Series*



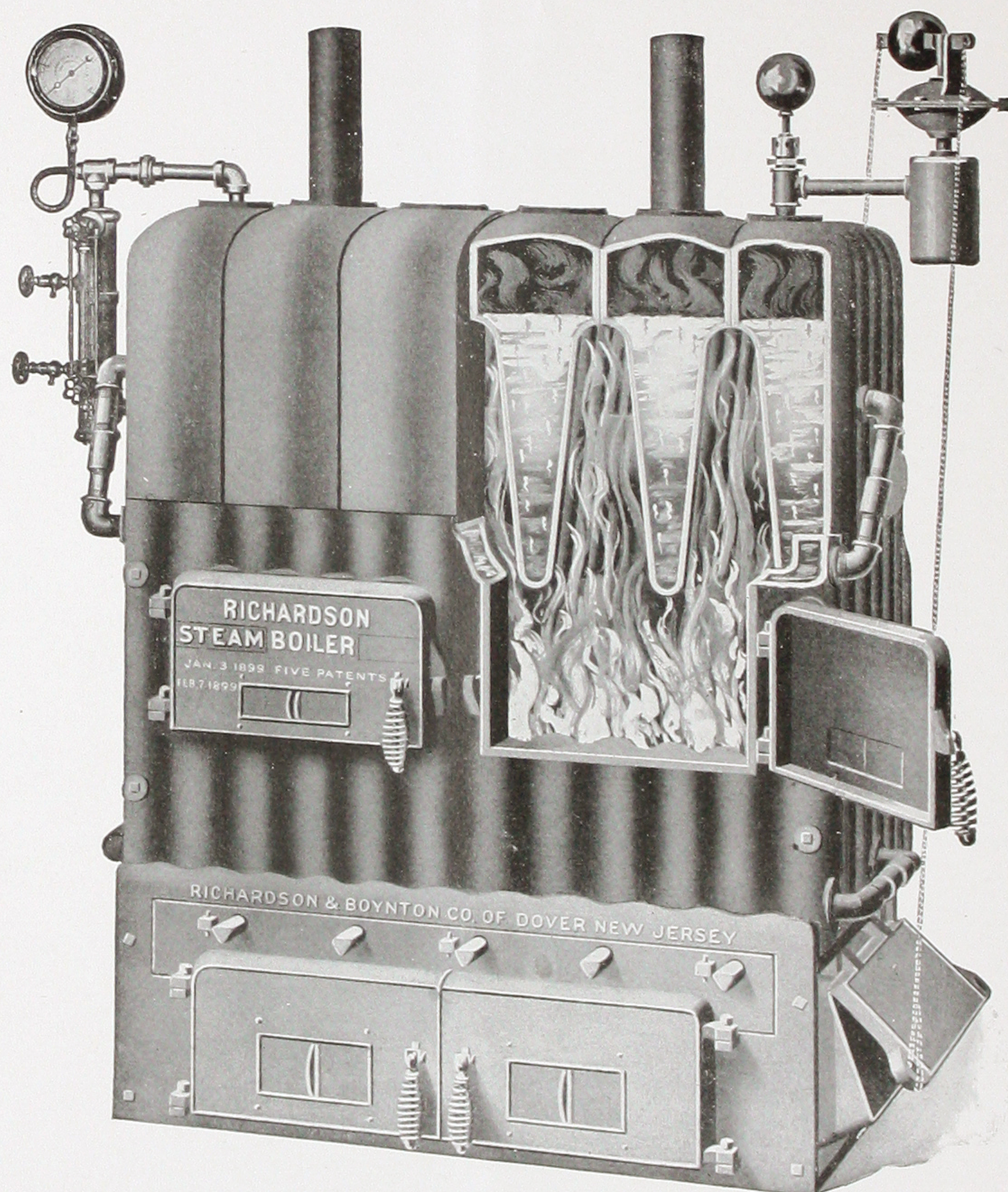
Interior View Four Section "Richardson" Boiler —
18, 22 and 30 Series

THE interior view of these boilers shows fully the reason for their great heating power. They have over 75 per cent. of direct heating surface—that is, surface on which the light of the fire shines; consequently, they will generate steam or raise water to a high temperature quickly, with a small amount of fuel.

[See pages 16 and 17]

Richardson Boilers

*Side Feed
Sectional
Series*



“Richardson” Sectional Steam Boilers — 18, 22 and 30 Series

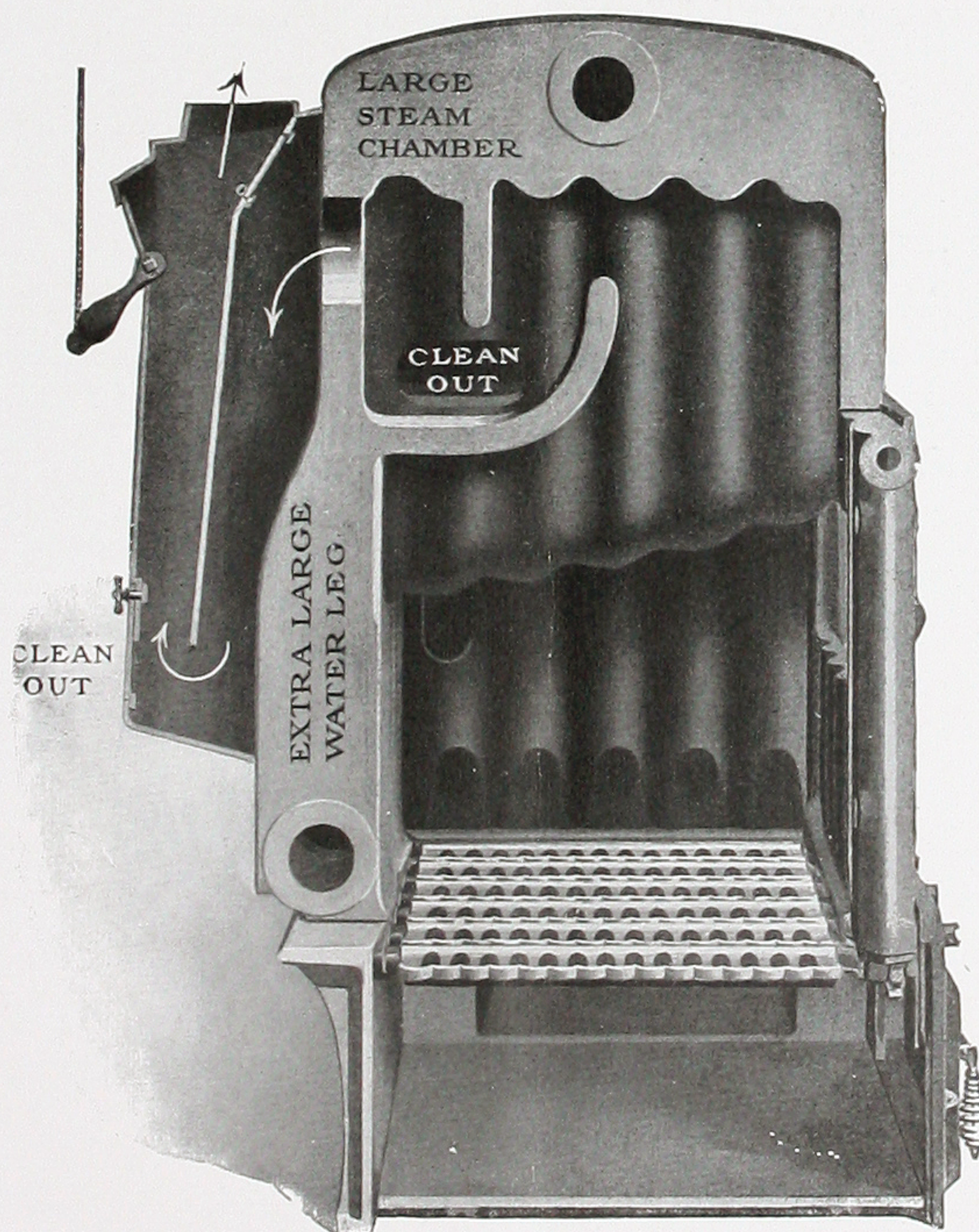
THE value of heating surface depends upon its location. The heating surfaces in these boilers are directly over and surround the fire where it feels the first effect of the heat; hence their great power and economy. On larger boilers of 5, 6 and 7 sections, double feed and ashpit doors are provided, so that every part of the fire is accessible for attention, making it easy to put on coal and remove the ashes.

[See pages 16 and 17]

Richardson Boilers

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*Side Feed
Sectional
Series*



Interior View of "Richardson" Sectional Boilers — 18, 22 and 30 Series

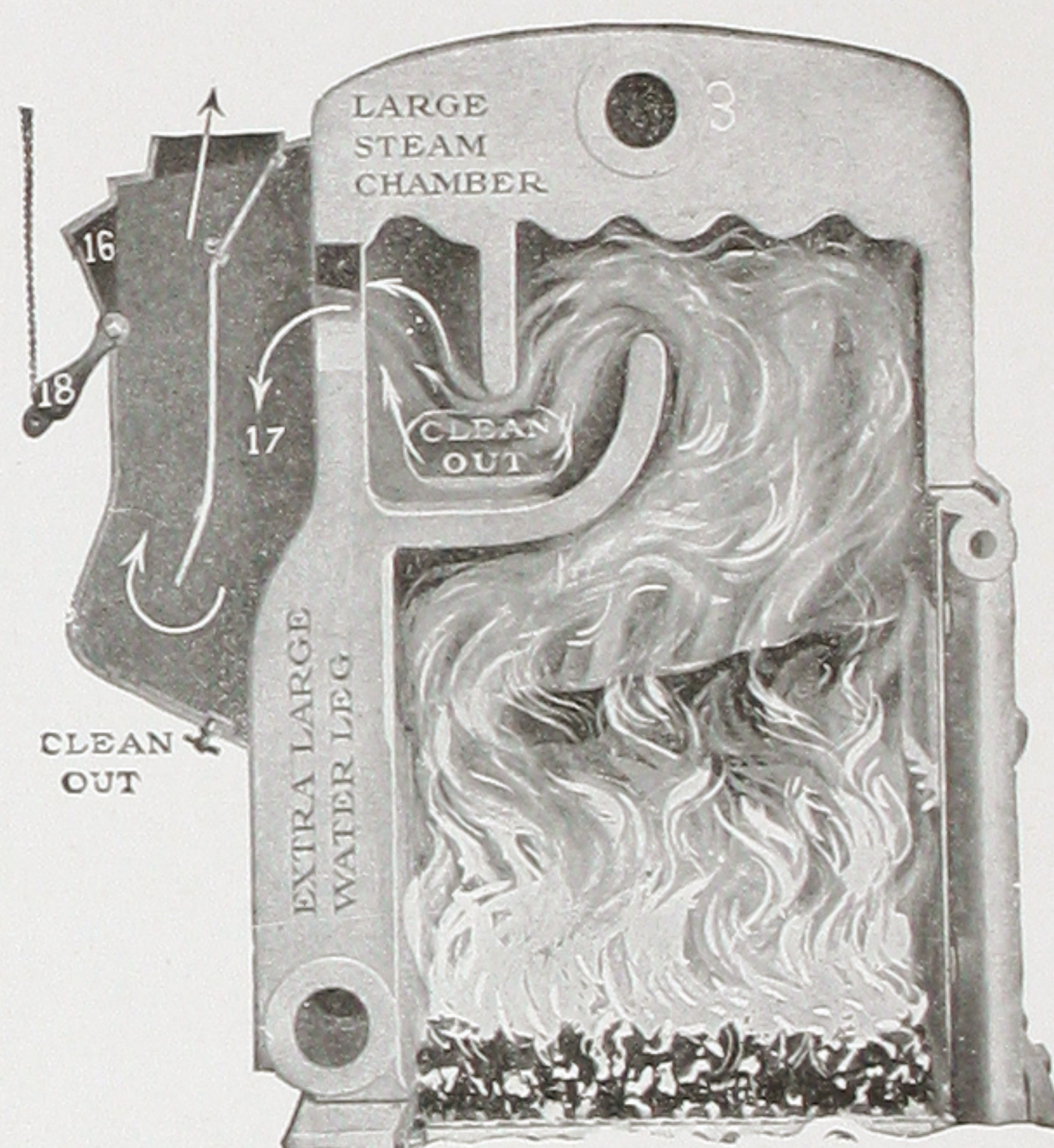
THE side view of the "RICHARDSON" Boiler fully emphasizes the effective arrangement of the fire and flue surfaces, and the deep reverberant flue on the back of the boiler which holds back the products of combustion until the full efficiency of the boiler is attained. The large water leg at the back of the section, and the large, high steam chamber, produce a steady water line under all conditions. The greater part of the surfaces are self-cleaning and clean-out openings are provided in each end section for cleaning the remainder of flues.

[See pages 16 and 17]

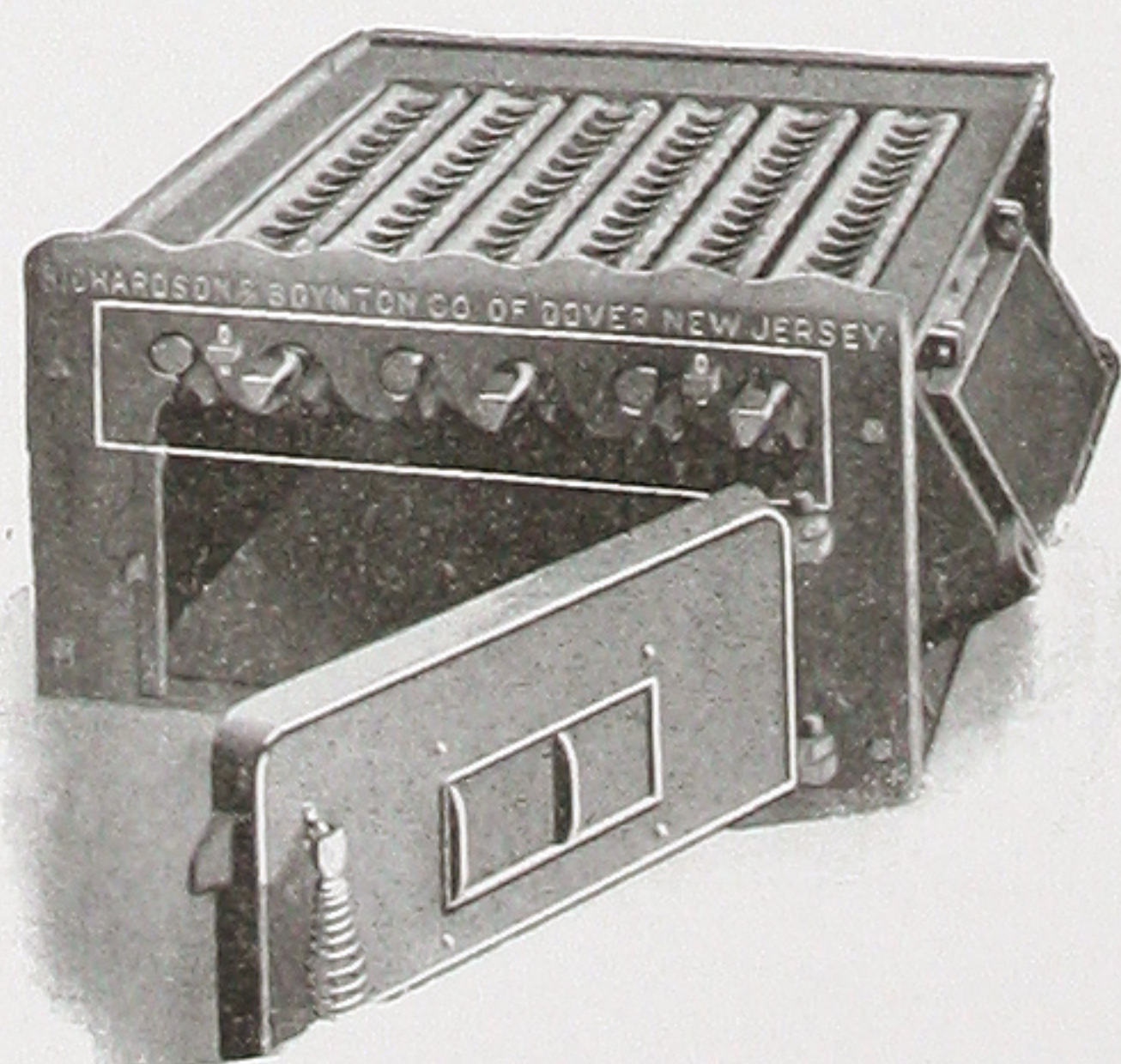
Richardson Boilers

Details of Construction

THE principle on which these boilers are constructed is the placing of a large amount of heating surface in direct contact with the fire. This surface backed by water in small bodies heats quickly and circulates rapidly. The surface is arranged to overhang the fire, the products of combustion passing up on both sides, and giving a high combustion chamber for the free combustion of all the gases. The firebox is of sufficient depth to carry a large body of fire, to be run at a low rate of combustion, and requiring attention only at long intervals.



The connections between the sections of these boilers are made with extra heavy cast-iron tapered slip nipples, of the same metal as the section itself; consequently, there is no unequal expansion, and no danger from leaks. These nipples make up absolutely tight into a tapered opening in the section, without the use of any packing or joint cement.



THE grates in these "RICHARDSON" Boilers are the Perfect revolving air circulating grate bars, permitting a proper mixture of oxygen with the fire, resulting in perfect combustion. They can be easily shaken to remove ashes and clinkers from the fire. Not the whole grate surface is shaken at one operation, but only that part requiring attention. The bars can be taken out and replaced from the front quickly and without trouble.

Richardson Boilers

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Ratings and Dimensions

Sectional Steam and Water Boilers

18-22-30 Side Feed Series

Pages 12 to 16

Size	Rating, Hot Water	Rating, Steam	Dimensions of Fire Chamber	Grate Area Square Feet	Width of Boiler and Front Section Connections — Inches	Depth of Boiler Including Smoke Box Inches	Number and Size of Flow and Return Openings — Inches	Number and Size of Flow and Return Openings — Inches	Size of Smoke Pipe Inches
	WATER	STEAM					STEAM	WATER	
318	475	300	20 x 14 $\frac{3}{4}$	1.75	30 $\frac{1}{2}$	37 $\frac{1}{2}$	1-2 $\frac{1}{2}$	1-2 $\frac{1}{2}$	8
322	550	350	23 $\frac{1}{4}$ x 14 $\frac{3}{4}$	2.14	30 $\frac{1}{2}$	41 $\frac{1}{2}$	1-3	1-3	8
418	725	450	20 x 21 $\frac{3}{4}$	2.63	37 $\frac{3}{4}$	40 $\frac{1}{2}$	1-2 $\frac{1}{2}$	2-2 $\frac{1}{2}$	9
422	825	500	23 $\frac{1}{4}$ x 21 $\frac{3}{4}$	3.21	37 $\frac{3}{4}$	44 $\frac{1}{2}$	1-3	2-3	9
518	900	550	20 x 29	3.50	45	40 $\frac{1}{2}$	2-2 $\frac{1}{2}$	2-2 $\frac{1}{2}$	10
522	1100	675	23 $\frac{1}{4}$ x 29	4.28	45	44 $\frac{1}{2}$	2-3	2-3	10
430	1250	750	31 x 21 $\frac{3}{4}$	4.38	37 $\frac{3}{4}$	55 $\frac{1}{2}$	1-3 $\frac{1}{2}$	2-3 $\frac{1}{2}$	10
622	1400	850	23 $\frac{1}{4}$ x 36 $\frac{1}{4}$	5.35	52 $\frac{1}{4}$	44 $\frac{1}{2}$	2-3	3-3	10
530	1700	1025	31 x 29	5.83	45	55 $\frac{1}{2}$	2-3 $\frac{1}{2}$	2-3 $\frac{1}{2}$	12
630	2150	1300	31 x 36 $\frac{1}{4}$	7.29	52 $\frac{1}{4}$	55 $\frac{1}{2}$	2-3 $\frac{1}{2}$	3-3 $\frac{1}{2}$	14
730	2600	1575	31 x 43 $\frac{1}{4}$	8.75	59 $\frac{1}{2}$	55 $\frac{1}{2}$	2-3 $\frac{1}{2}$	3-3 $\frac{1}{2}$	15
830	2880	1800	31 x 50 $\frac{3}{4}$	10.21	66 $\frac{3}{4}$	55 $\frac{1}{2}$	2-3 $\frac{1}{2}$	3-3 $\frac{1}{2}$	15

18 inch series 53 inches high 46 $\frac{1}{2}$ inch water line.
 22 " " 55 " " 48 " " "
 30 " " 61 " " 53 $\frac{1}{2}$ " " "

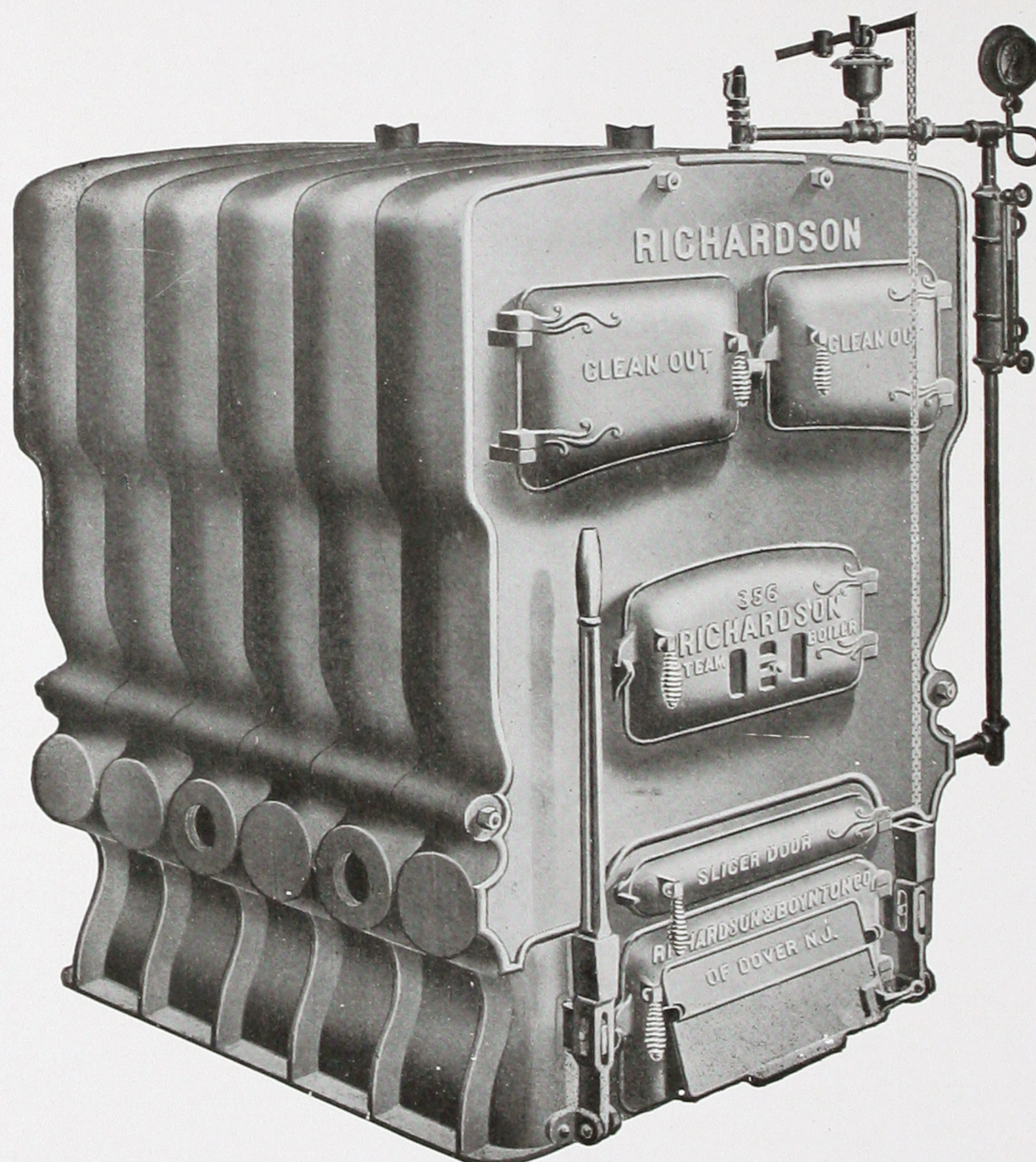
OUR ratings provide that all piping (main, risers and returns), in addition to the direct radiation to be used, shall be figured as radiating surface in estimating the size boiler necessary.

Also allowance made for indirect, direct-indirect and coil radiation, and any unusual conditions.

See Guarantee on Page 5

Richardson Boilers

*End Feed
Sectional
Series*



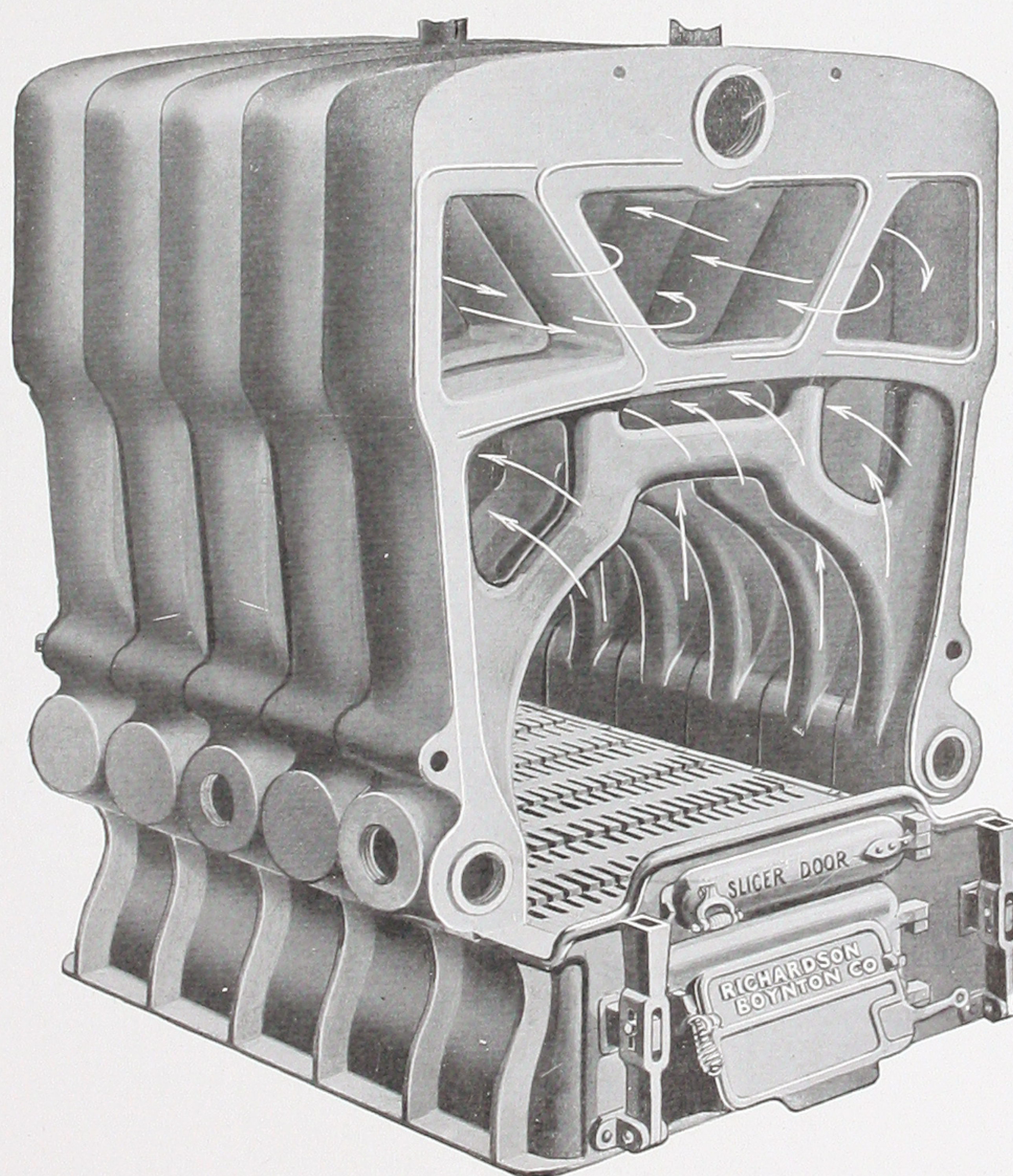
"Richardson" End Feed Sectional Boilers—25 Series

THE prime features of the "RICHARDSON" End Feed Sectional Boilers are the ease with which they can be operated, their ability to carry their ratings for long periods, and an economical operating expense. This is accomplished by securing the proper proportion and arrangement of the heating surface to the grate area with large flues, admitting of a low rate of combustion.

[See pages 26 to 29]

Richardson Boilers

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*End Feed
Sectional
Series*

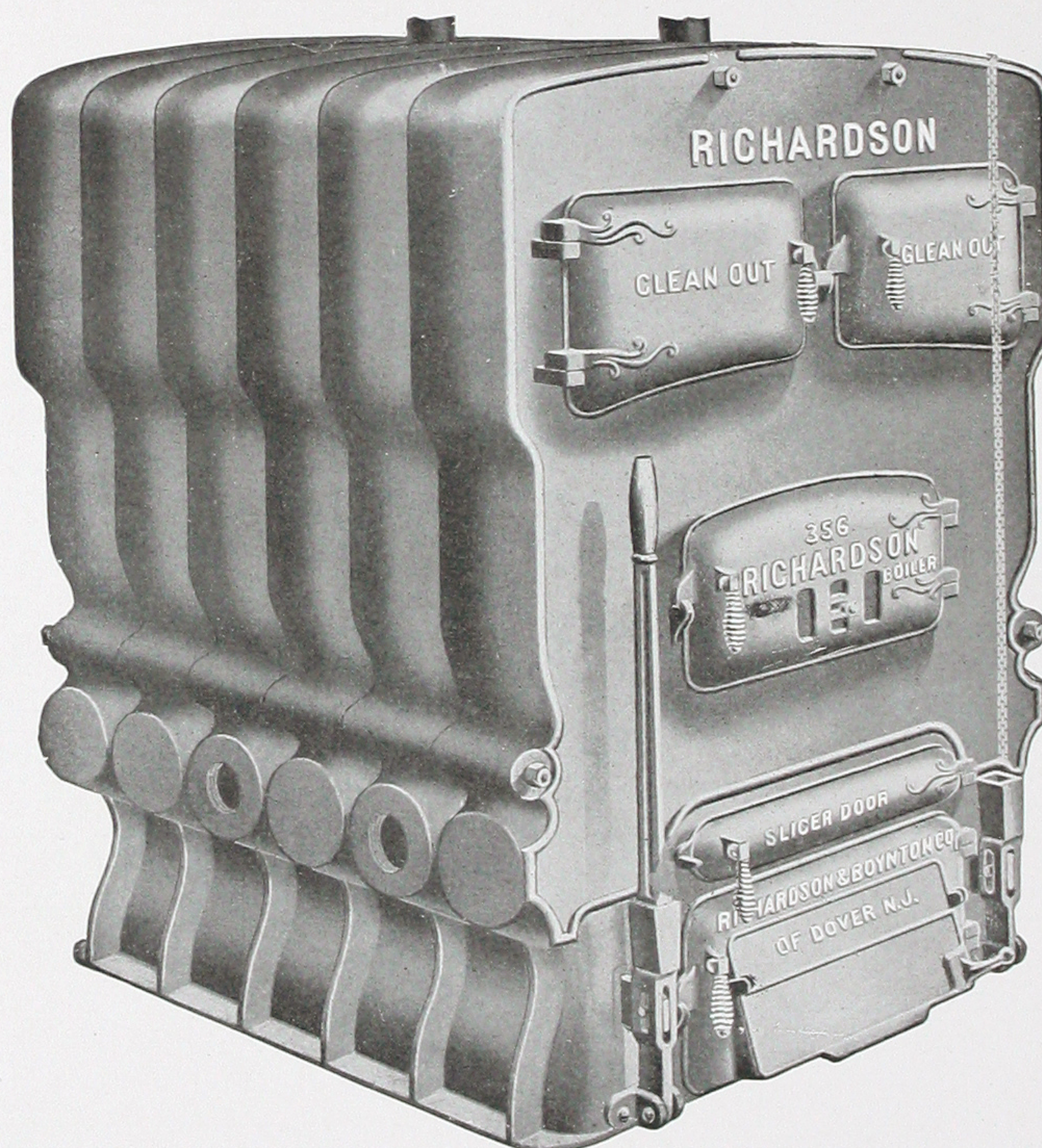
View of a Section of the End Feed Sectional Boilers showing the immense direct heating surface and long revertible flue smoke travel inside the boiler—25 Series

RICHARDSON" Boilers are so constructed as to present to the fire a large amount of direct heating surface. This surface being entirely backed by water, in thin, shallow bodies, circulates rapidly and quickly absorbs the heat units given off by the fire. But the true value of a boiler depends not alone on the amount of heating surface, but the proper proportions between grate surface and heating surface, yet with sufficient fire travel, to hold the products of combustion long enough to thoroughly extract all possible heat from the coal consumed.

[See pages 26 to 29]

Richardson Boilers

*End Feed
Sectional
Series*



"Richardson" End Feed Sectional Boilers—35 and 42 Series

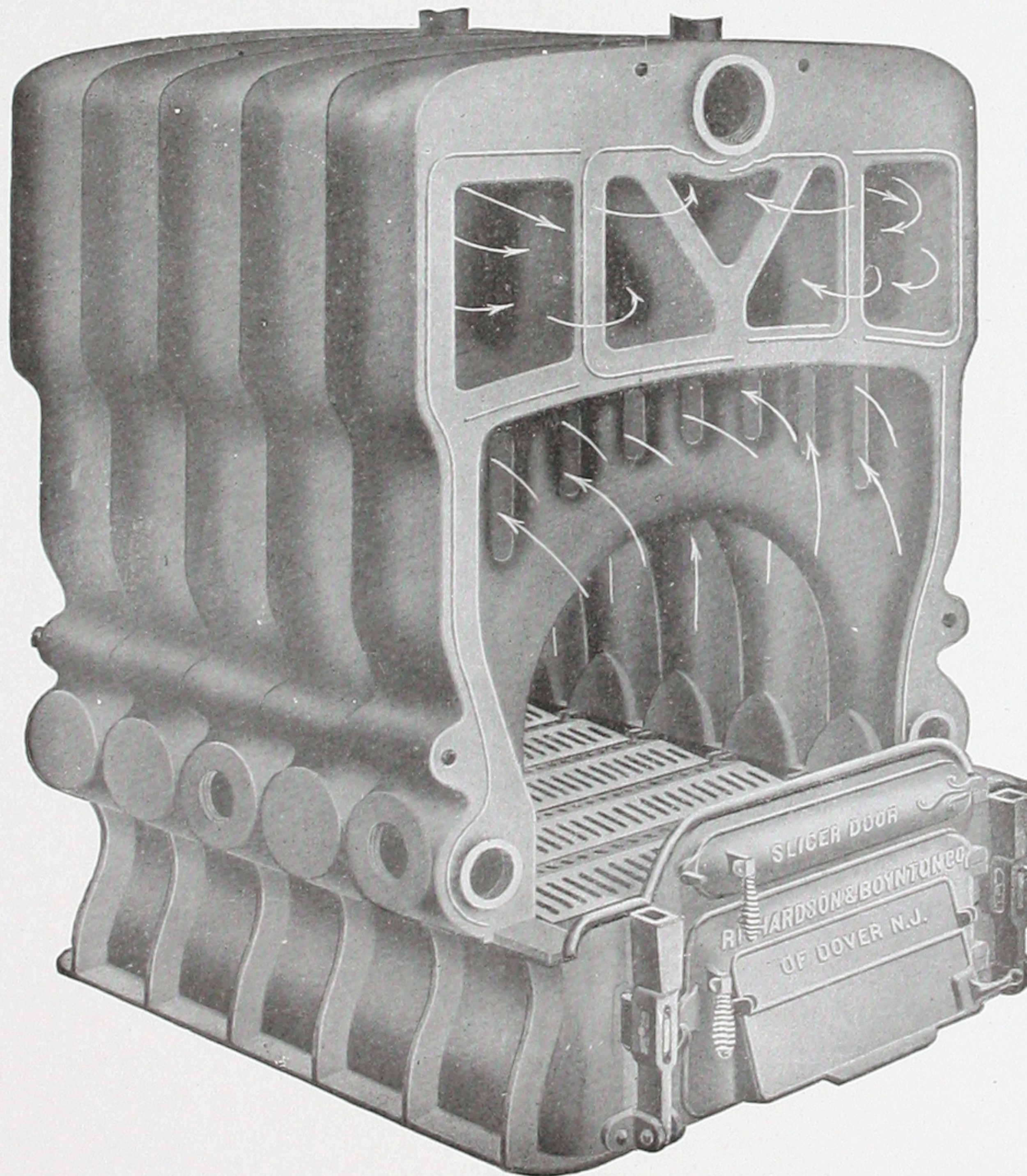
SPECIAL care has been exercised in fitting "RICHARDSON" Boilers with ample provision for easy firing and cleaning. The two large upper doors furnish access to the flue surface for cleaning. The fire door is wide and high, so that all parts of the fire can be easily reached, and through the slicer door all parts of the grate can be thoroughly cleaned. The ash pit is high and commodious for the easy removal of the ashes.

[See pages 26 to 29]

Richardson Boilers

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*End Feed
Sectional
Series*



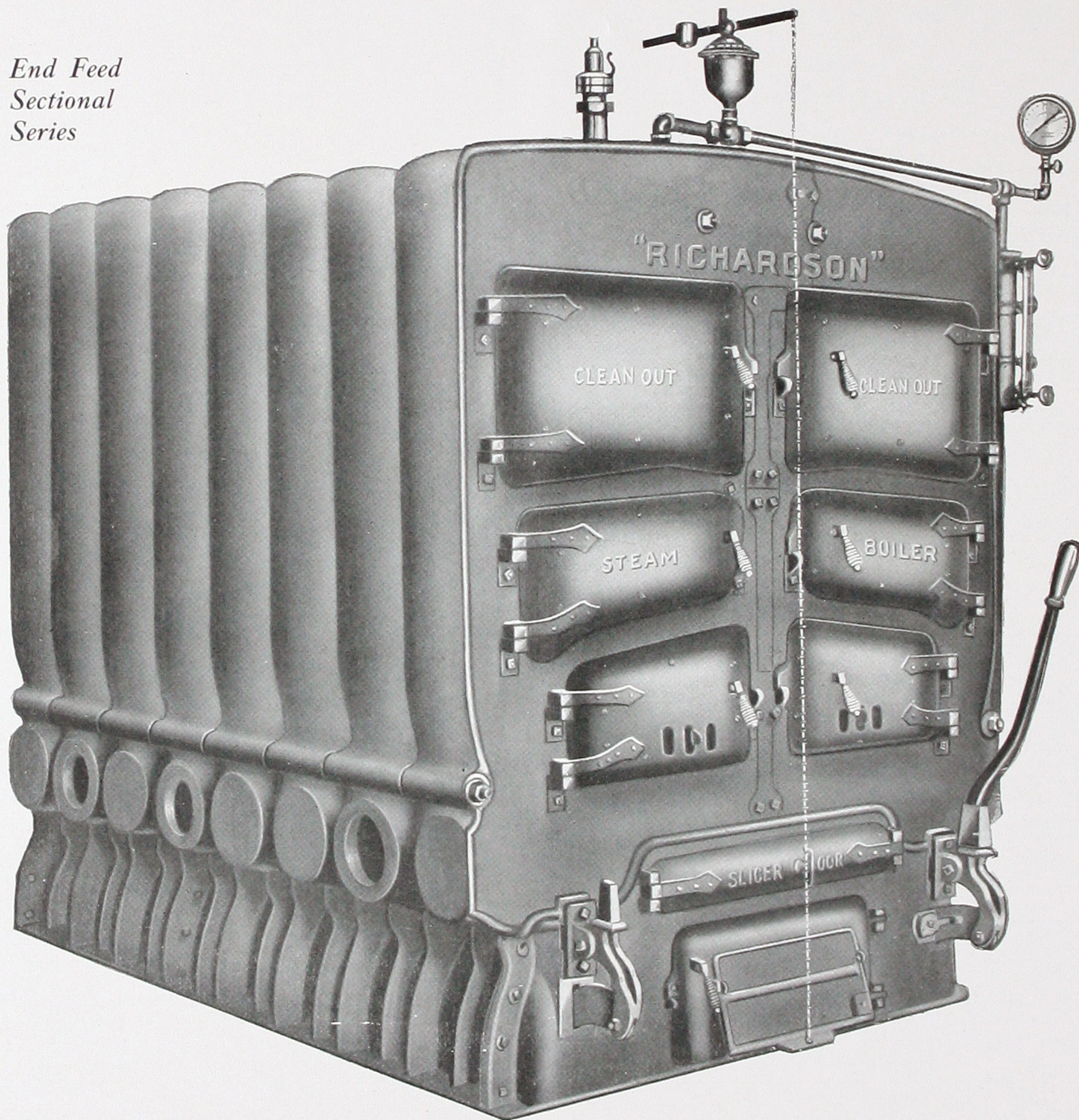
Interior View of "Richardson" Steam or Water End Feed Boilers—35 to 42 Series

THE design of the "RICHARDSON" End Feed Sectional Boilers is such as to secure an effective and positive distribution of the products of combustion to all parts of the boiler. The flames pass three times the full length of the boiler, constantly in contact with water heating surfaces, being so arranged as to absorb to the fullest extent the products of the fuel consumed. The thin water ways cause a rapid internal circulation of the water over the heated surfaces, greatly increasing the power of the boiler.

[See pages 26 to 29]

Richardson Boilers

*End Feed
Sectional
Series*



"Richardson" End Feed Sectional Boilers — 53 Series

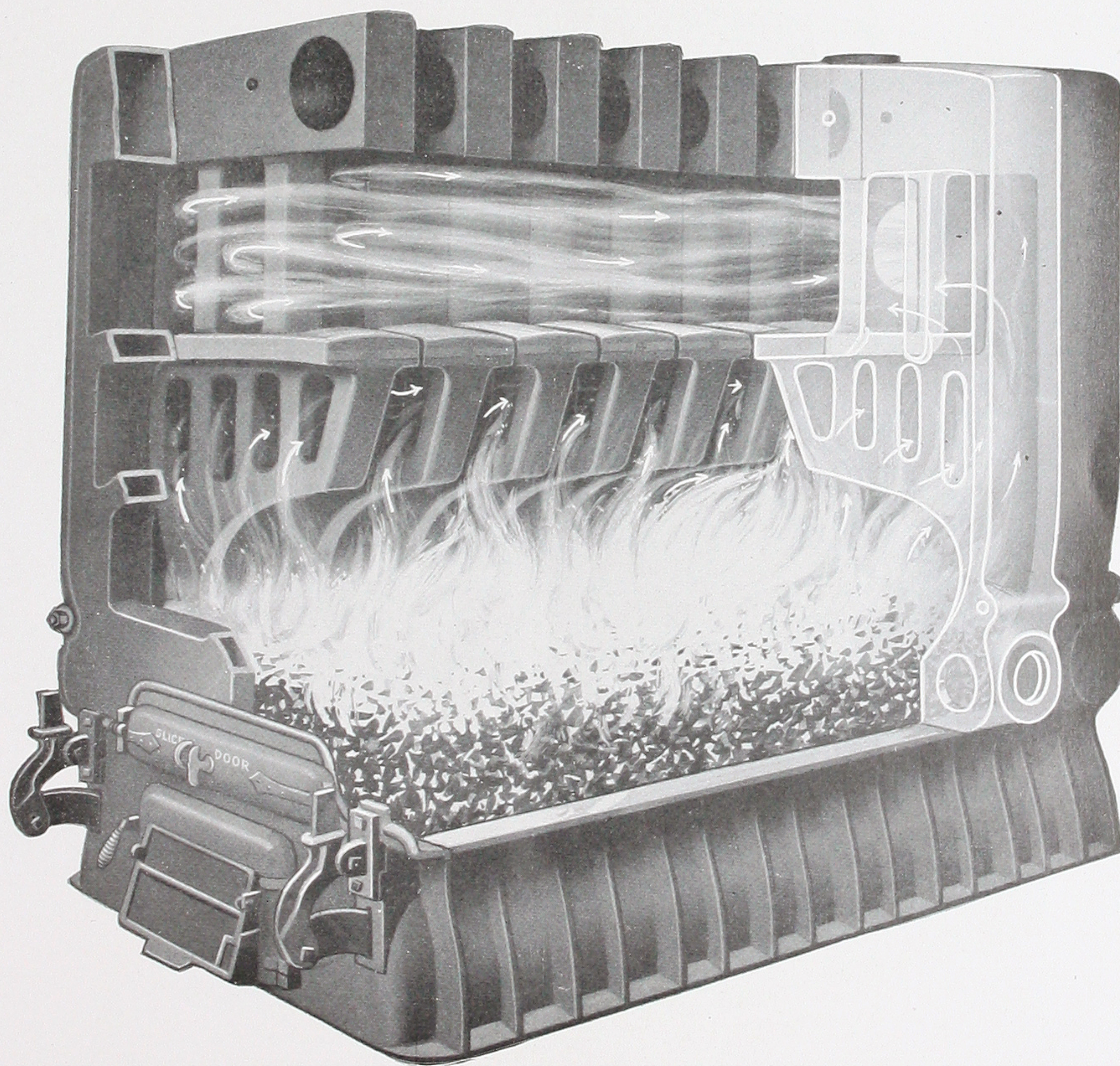
THE large series of the "RICHARDSON" End Feed Sectional Boilers are especially arranged for easy firing, being fitted with large, double-feed doors and convenient clean-out doors. The ash pit is high and wide, and being fitted with a large door, makes the removal of the ashes a simple operation. The grates are arranged to shake half from one side and half from the other side; and grate bars can be furnished for burning any size of coal.

[See pages 26 to 29]

Richardson Boilers

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*End Feed
Sectional
Series*



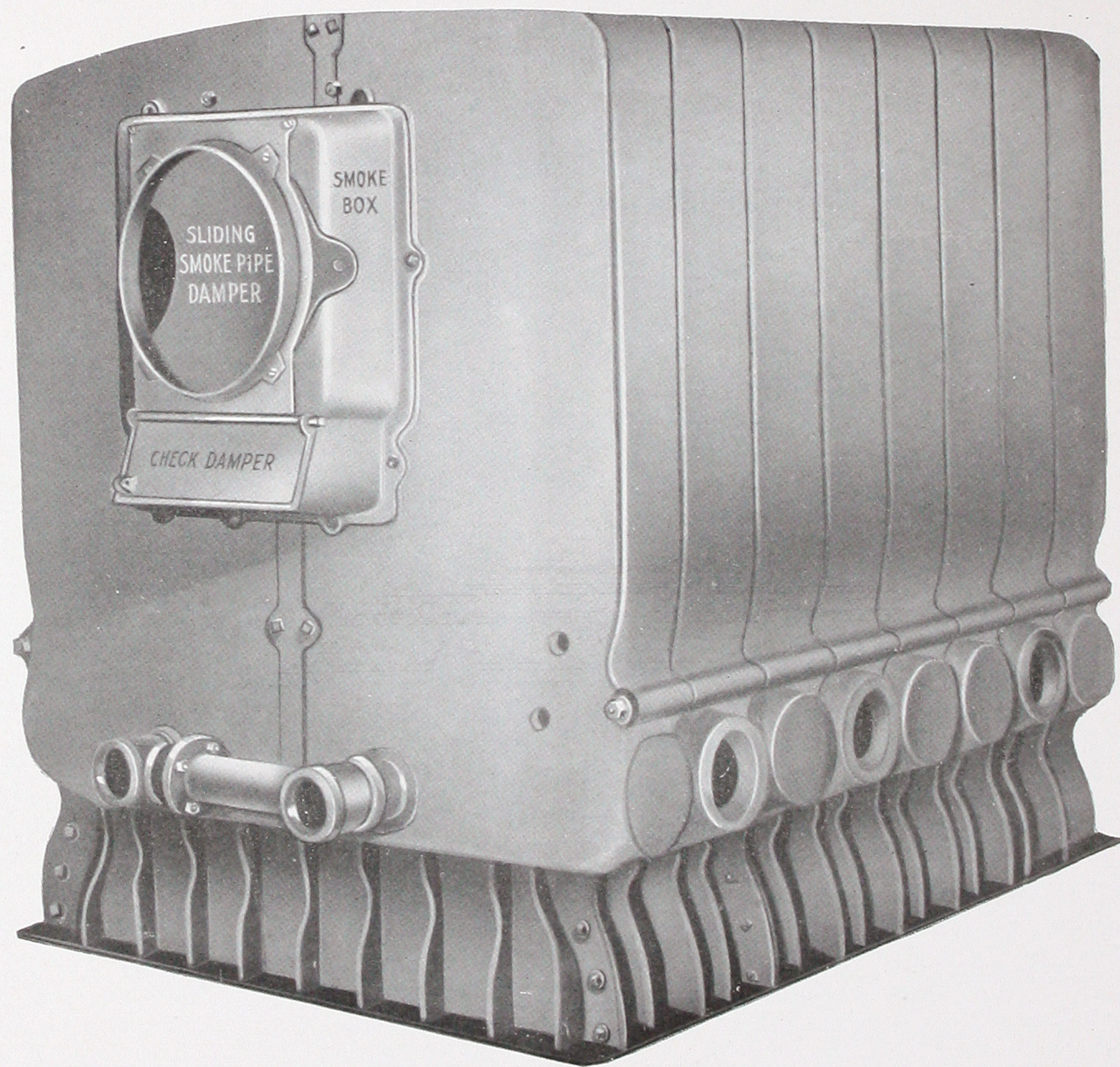
Interior View "Richardson" Steam or Water End Feed Boilers — 53 Series

"RICHARDSON" 50-inch grate series Sectional Steam and Hot Water Boilers have a large amount of heating surface exposed to the action of the fire, and will consequently raise the temperature of the water quickly and generate steam, with economy of fuel. They are of similar design and construction to the 25-35-42 series which have been so popular and successful, and for convenience in erecting, are made in half sections.

[See pages 26 to 29]

Richardson Boilers

*End Feed
Sectional
Series*

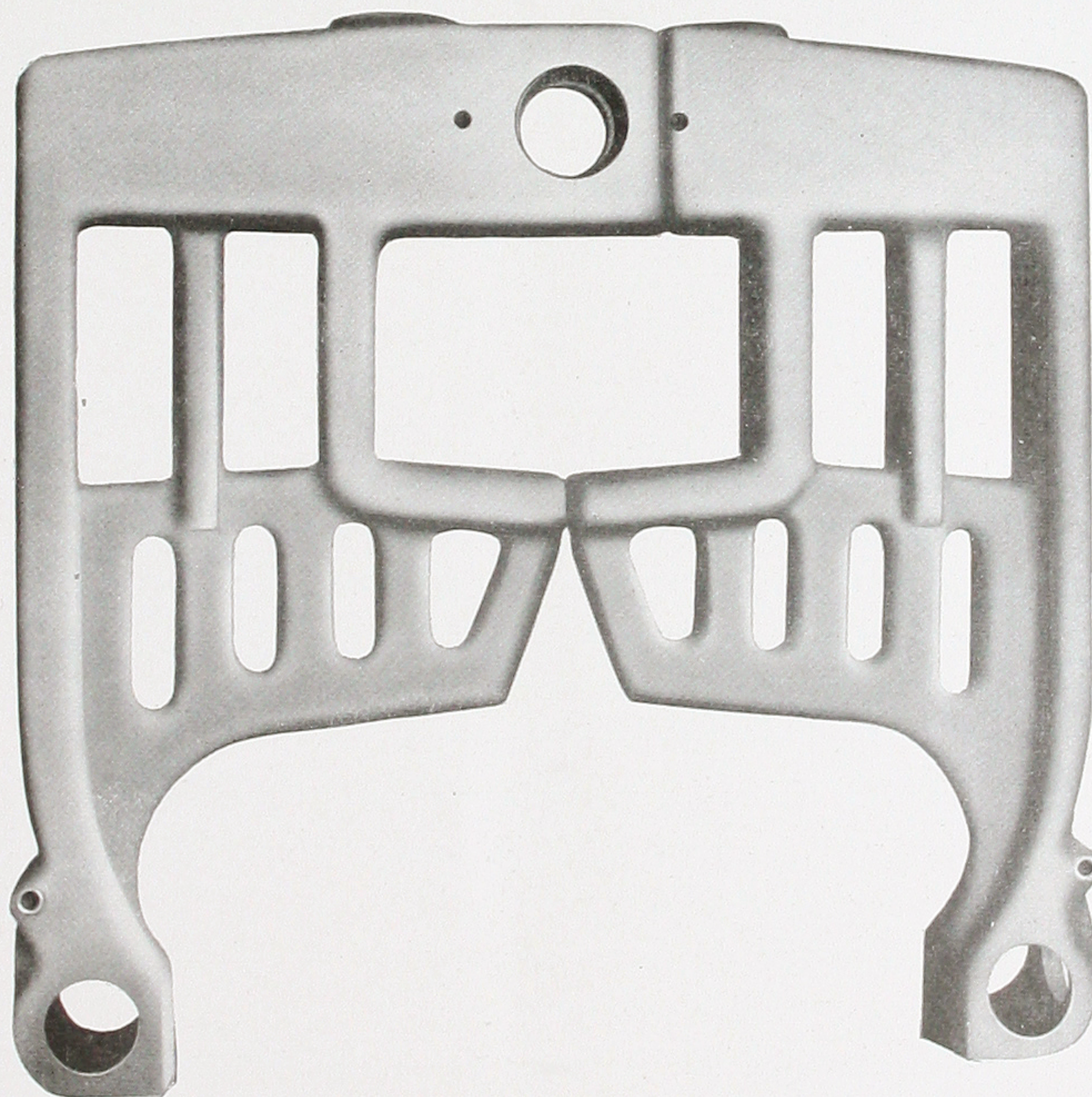


Rear View "Richardson" End Feed Sectional Boilers — 53 Series

THE rear view of the 50-inch grate series "RICHARDSON" End Feed Boilers, shows the ample smoke box, with sliding damper and check draft damper, also the yoke connection at the back, which is furnished with the boiler, so that both halves of the boiler may be drained equally; cored openings are furnished in the rear section, so that a coil can be placed in the fire box for heating water for domestic purposes.

[See pages 26 to 29]

*End Feed
Sectional
Series*



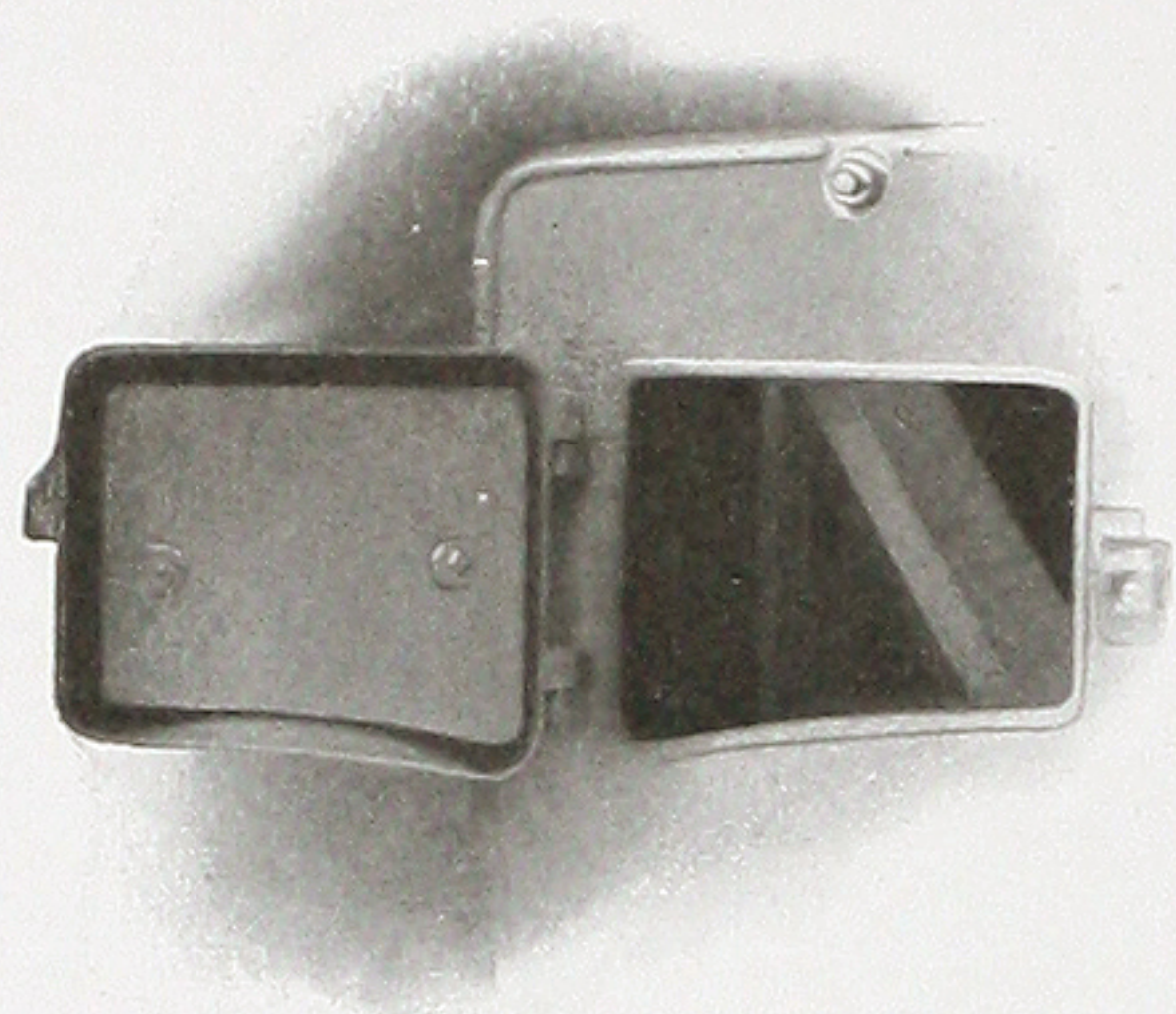
Back Leg Section of "Richardson" End Feed Boilers—53 Series

THE Interior Sections of the 50-in. Series "RICHARDSON" End Feed Boilers show clearly the large amount of heating surface hanging directly over the fire with openings through the surface, dividing the water into small bodies and forming a positive channel for the passage of the heated gases to the rear of the boiler, where they turn up and come to the front through the four flues, two on each side; turning at the front, they go back through the large central flue to the smoke outlet.

[See pages 26 to 29]

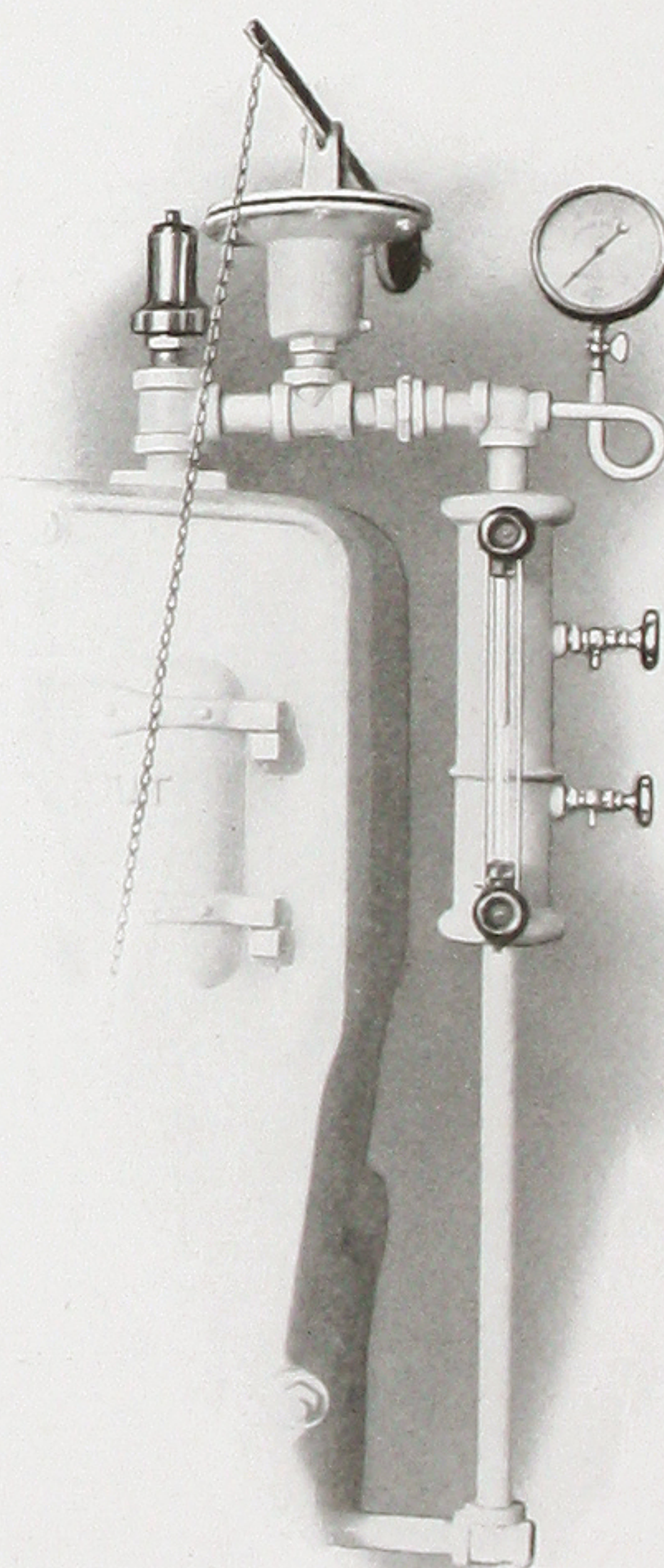
Richardson Boilers

Details of Construction



AN important feature in every boiler is the accessibility to every part for cleaning, making it possible to keep it in prime condition. Note the large double cleanout doors with which these boilers are fitted, and the consequent ease with which all flue surfaces can be reached for cleaning.

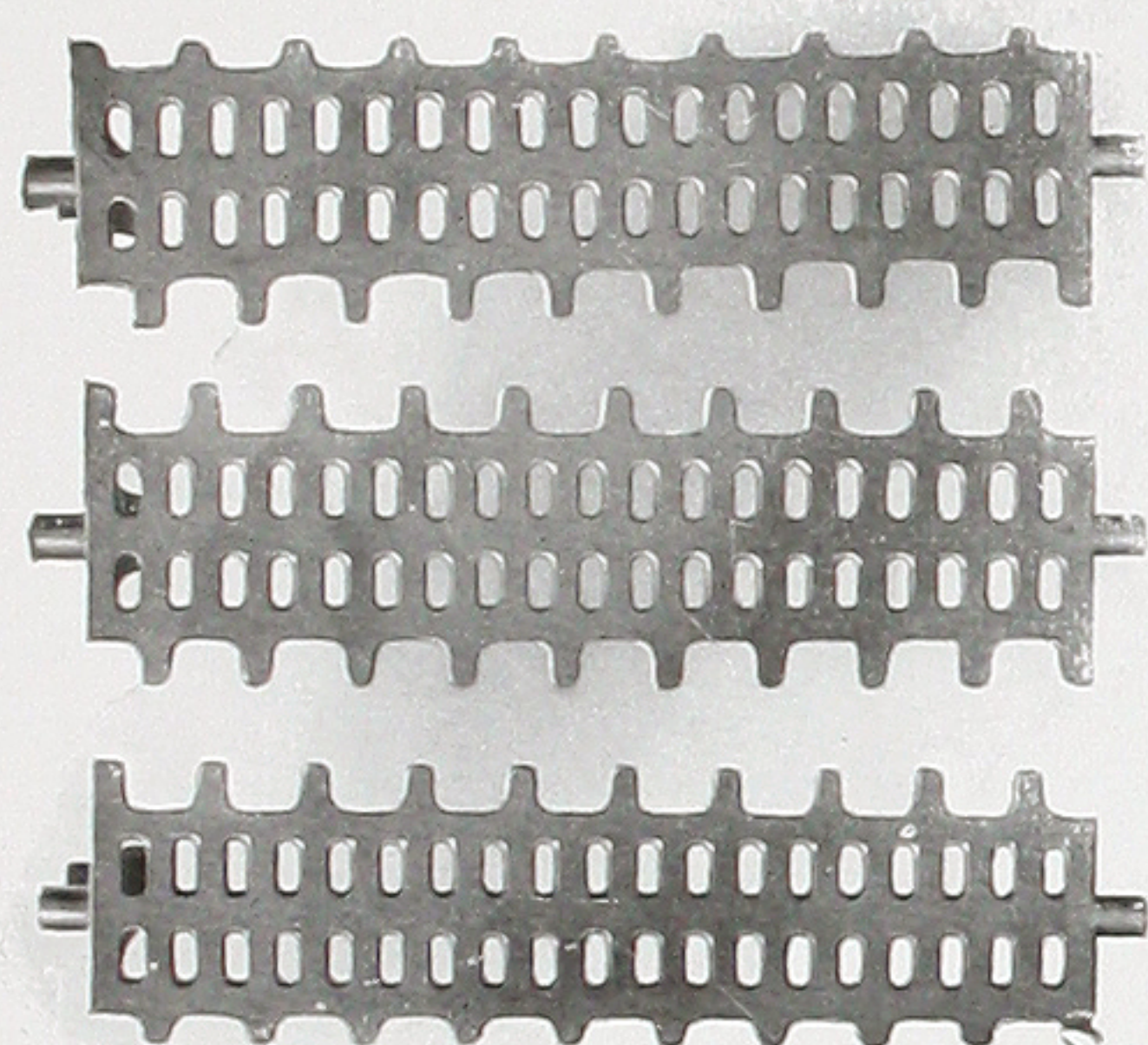
"RICHARDSON" Steam Boilers are fitted with the latest pattern high-grade steam trimmings, water columns with gauge cocks and tri-cocks, steam gauge with cock, to register accurately the pressure carried, and brass spring pop safety valve designed to blow off at 10 lbs., securing absolute freedom from all possibility* of carrying a high pressure, and of most importance, an improved sensitive diaphragm regulator, which, connected to the dampers, responds quickly to the changes in boiler pressure, opening the draft dampers when the pressure falls and closing them when the pressure reaches the desired point.



In the ash pit front is the slicer door for cleaning grate of clinkers and ashes without disturbing the top of the fire.

Richardson Boilers

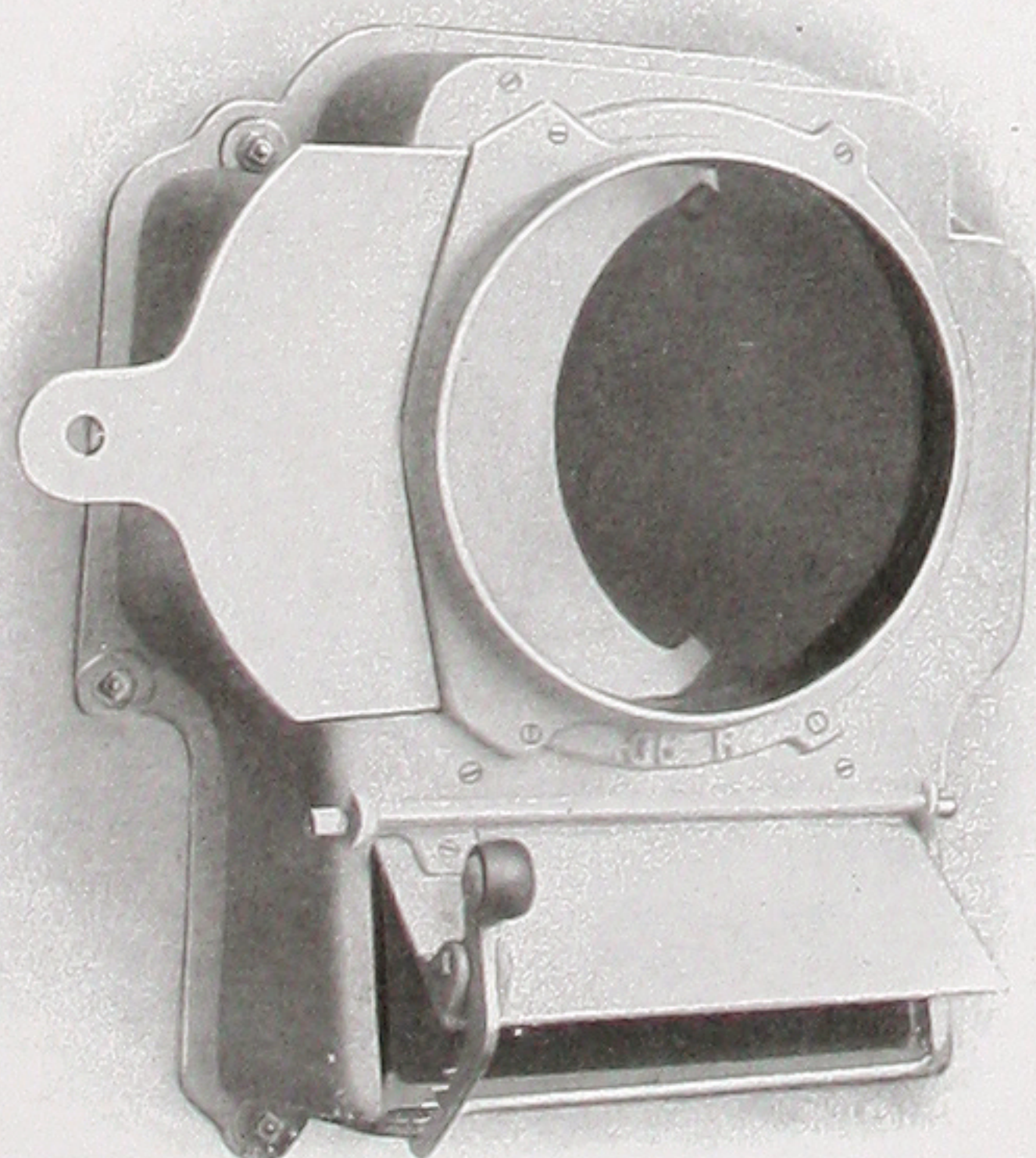
27



Details of Construction

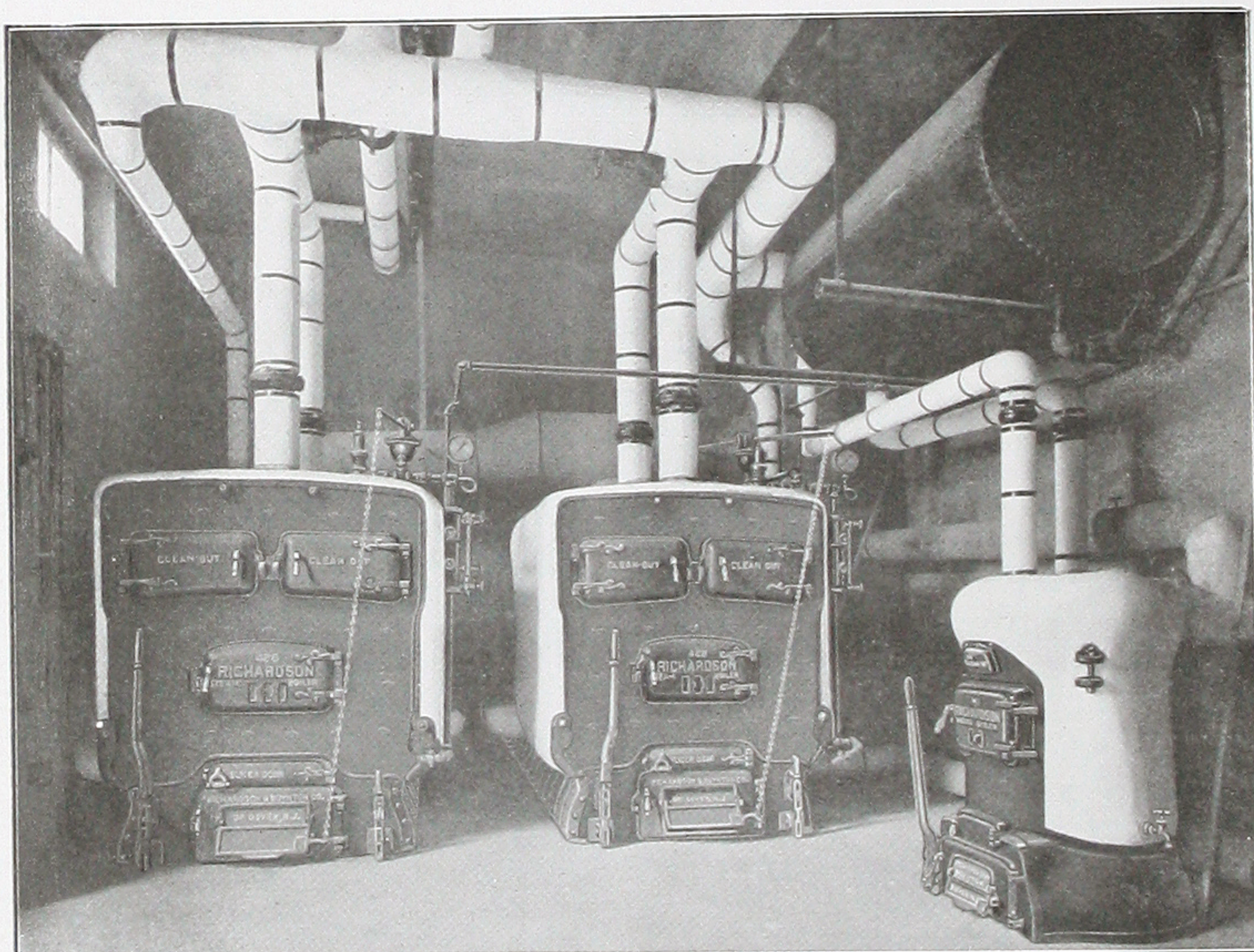
THE grate bars in these boilers are extra heavy sectional shaking and dumping pattern, operated in sections from the front of the boiler and controlled by a lock plate permitting the bars to be shaken, dumped, or locked in position, as desired, and are made for burning large or small size coal.

All connections between the sections are made with extra heavy cast-iron tapered slip nipples, fitting into a tapered opening in the section, and making up absolutely tight. These nipples being made of the same metal as the sections have the same expansion and contraction as the rest of the boiler and, consequently, the joints are absolutely tight.



At the rear of the boiler is the smoke box, fitted with a sliding throttle damper for controlling the draft, and with an air inlet check draft door at the bottom, operated with a ratchet as shown on Water Boiler, but with weighted level handle connected by chain to the automatic damper regulator on steam boilers.

Richardson Boilers



ILLUSTRATING the installation of a modern steam heating apparatus in an apartment house, using two Richardson End Feed Sectional Steam Boilers, and a Richardson Tank Heater for Hot Water Supply.

Richardson Boilers

29

Ratings and Dimensions

Sectional Steam and Water Boilers

25-35-42-53 End Feed Series

Pages 18 to 28

Size	Rating, Water	Rating, Steam	Dimensions Fire Chamber Inches	Area Fire Chamber Square Inches	Grate Area Square Feet	Number and Size Flow Tappings Corresponding Return Tappings on each side	Number and Size Flow Tappings Corresponding Return Tappings on each side	Length of Boiler over Smoke Box, Inches	Size of Smoke Pipe, Inches
	WATER	STEAM				STEAM	WATER		
524	1100	650	29x22 $\frac{1}{2}$	652	3.44	1-3 $\frac{1}{2}$	2-3 $\frac{1}{2}$	39 $\frac{3}{4}$	8
525	1450	875	29x29 $\frac{3}{4}$	863	4.57	2-3 $\frac{1}{2}$	2-3 $\frac{1}{2}$	47	9
526	1800	1100	29x37	1073	5.70	2-3 $\frac{1}{2}$	3-3 $\frac{1}{2}$	54 $\frac{1}{4}$	10
527	2150	1300	29x44 $\frac{1}{4}$	1284	6.83	2-3 $\frac{1}{2}$	3-3 $\frac{1}{2}$	61 $\frac{1}{2}$	11
528	2500	1500	29x51 $\frac{1}{2}$	1494	7.97	2-3 $\frac{1}{2}$	3-3 $\frac{1}{2}$	68 $\frac{3}{4}$	12
355	2900	1800	38x33 $\frac{1}{4}$	1263	7.85	2-4	3-4	47 $\frac{1}{4}$	14
356	3625	2250	38x41 $\frac{1}{2}$	1577	9.81	2-4	3-4	55 $\frac{1}{2}$	14
357	4350	2700	38x50	1900	11.75	3-4	4-4	64	14
358	5075	3150	38x58 $\frac{1}{4}$	2213	13.70	3-4	4-4	72 $\frac{1}{4}$	14
359	5800	3600	38x66 $\frac{1}{2}$	2527	15.65	3-4	5-4	80 $\frac{1}{2}$	14
427	5000	3100	44x50	2200	13.82	2-5	3-5	64	16
428	5800	3600	44x58 $\frac{1}{4}$	2563	16.11	2-5	3-5	72 $\frac{1}{4}$	16
429	6600	4100	44x66 $\frac{1}{2}$	2926	18.40	2-5	3-5	80 $\frac{1}{2}$	16
4210	7400	4600	44x74 $\frac{3}{4}$	3289	20.69	3-5	4-5	88 $\frac{3}{4}$	16
4211	8200	5100	44x83	3652	22.98	3-5	4-5	97	16
653	8250	5000	57x54 $\frac{1}{2}$	3106	18.94	2-6	2-6	78 $\frac{1}{4}$	17
753	9900	6000	57x65 $\frac{1}{4}$	3719	22.68	2-6	2-6	89	17
853	11550	7000	57x76	4332	26.40	3-6	3-6	99 $\frac{3}{4}$	19
953	13200	8000	57x86 $\frac{3}{4}$	4945	30.12	3-6	3-6	110 $\frac{1}{2}$	21
1053	14850	9000	57x97 $\frac{1}{2}$	5558	33.88	3-6	3-6	121 $\frac{1}{4}$	21

25 series 55 inches high 39 inches wide 48 inches water line.

35 " 63 " " 48 " " 56 " " "

42 " 66 " " 54 " " 60 " " "

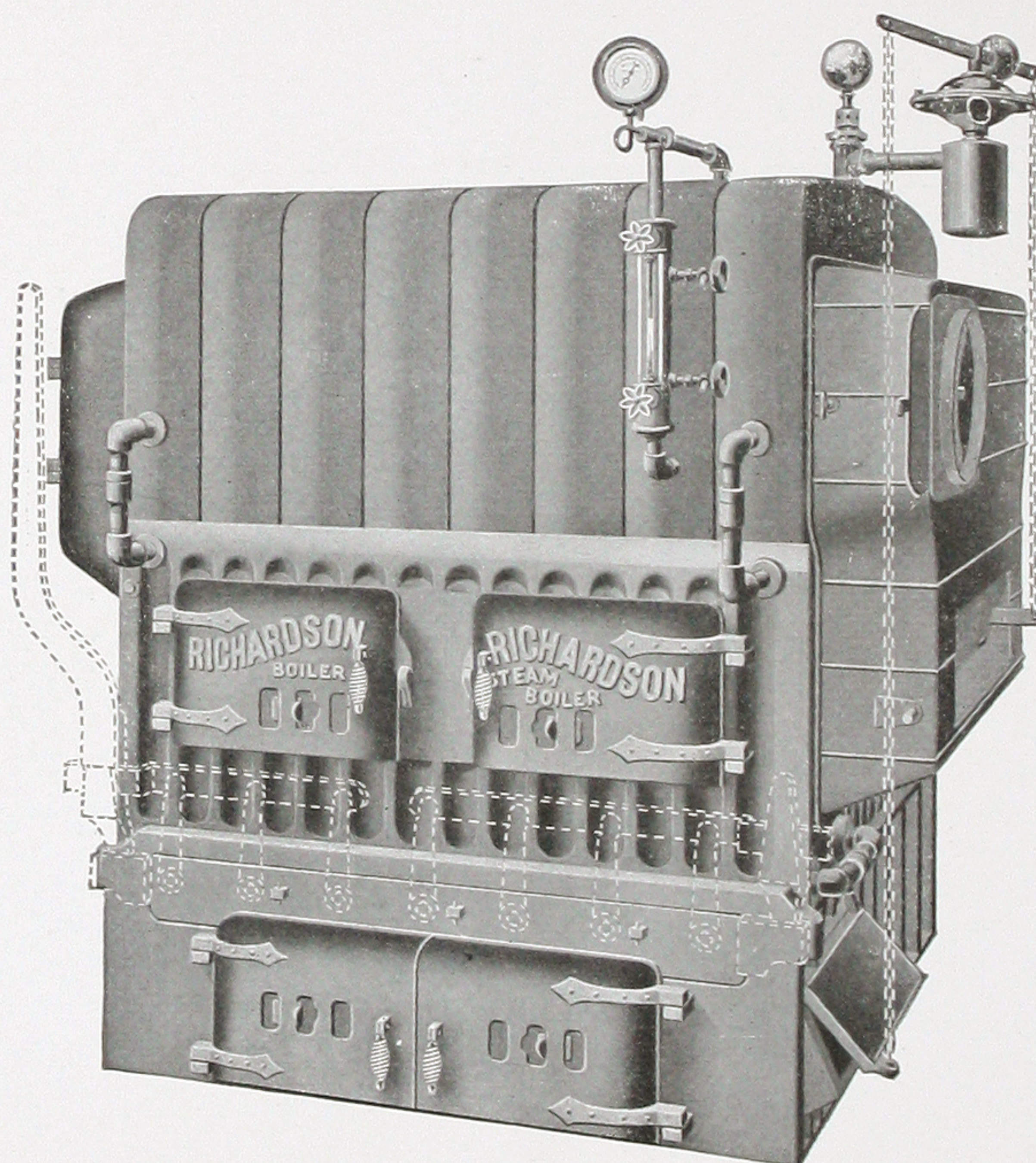
53 " 82 " " 69 $\frac{1}{2}$ " " 70 $\frac{1}{2}$ " " "

On 53 series all steam return tappings are 4 inch, and both steam and water have two 4 inch tappings in back section.

See Guarantee on Page 5

Richardson Boilers

*Side Feed
Sectional
Series*

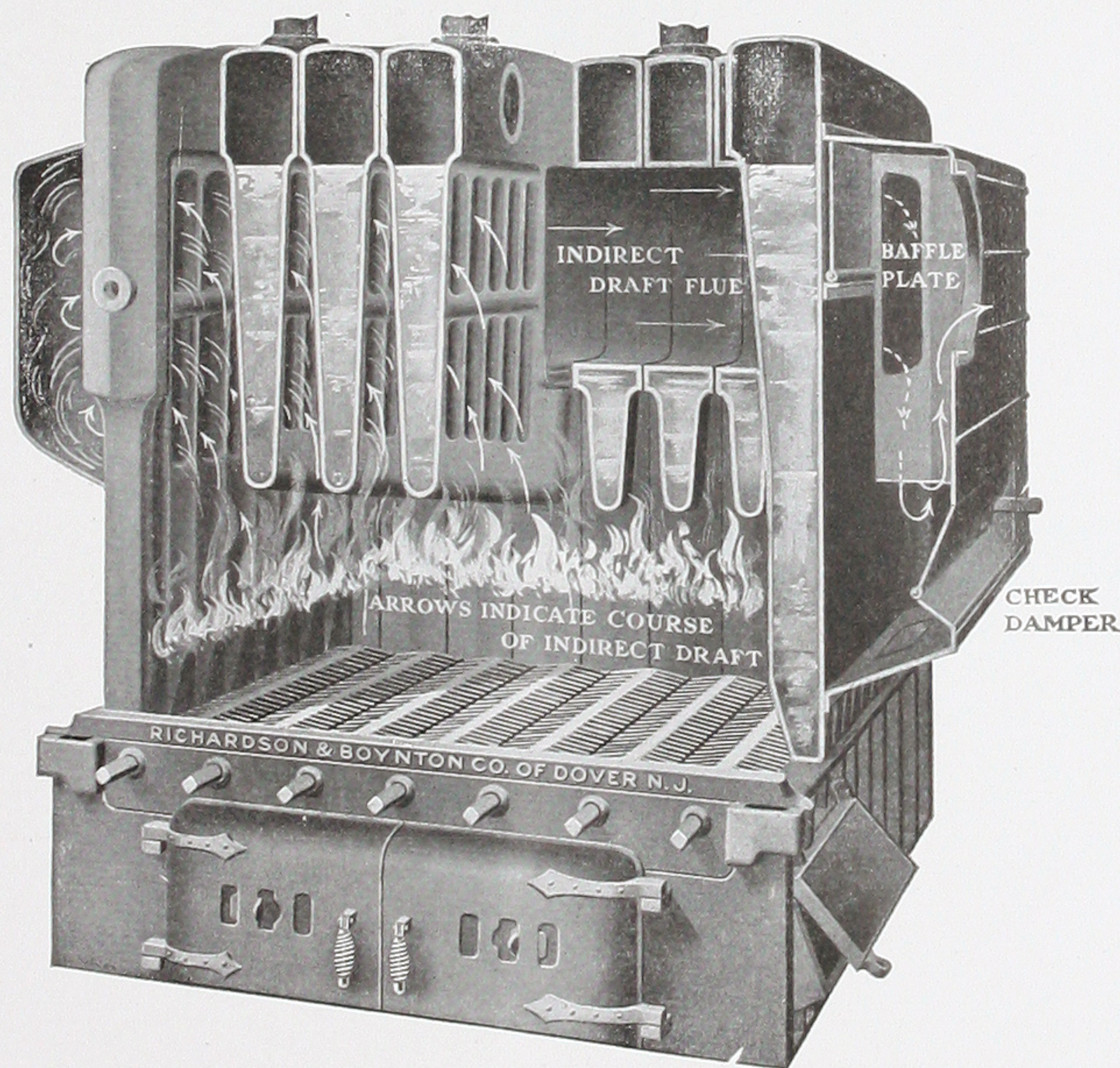


“Richardson” Side Feed Sectional Boilers—34 and 40 Series

ALL sizes of these “RICHARDSON” Boilers are fitted with heavy double firing doors, so that all parts of the grate surface can be reached for attention. The smoke outlet can be arranged either right or left hand to suit location of the chimney. The large ash-pit doors permit the easy removal of ashes and replacing the grates when necessary. These boilers have a very high efficiency, are popular, well made and economical.

[See pages 32 and 33]

*Side Feed
Sectional
Series*



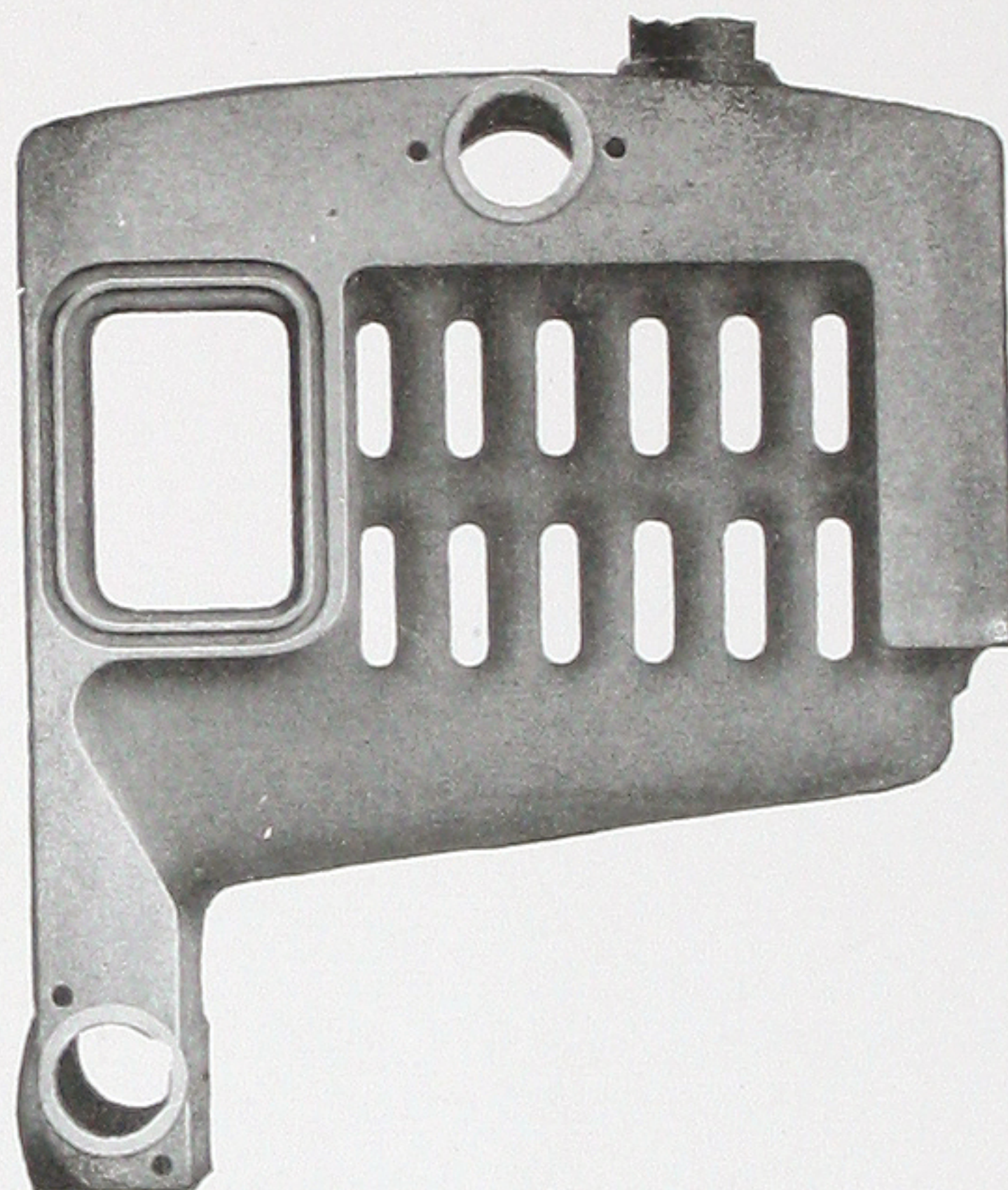
Interior View of "Richardson" Side Feed Sectional
Boilers—34 and 40 Series

THESE boilers, designed for large work, present to the direct rays of the fire over 75 per cent. of their actual surface, yet with a long fire travel to hold back the gases and prevent their escape to the smoke outlet at a high temperature. Direct surface is necessary to raise steam quickly, or to heat water with economy of fuel. These "RICHARDSON" boilers have deep fire pots and high combustion chambers, the fire traveling through the direct surfaces to the end flue box, returning the full length of the boiler, through the back flue to the smoke box, then down and around the baffle plate to the smoke pipe.

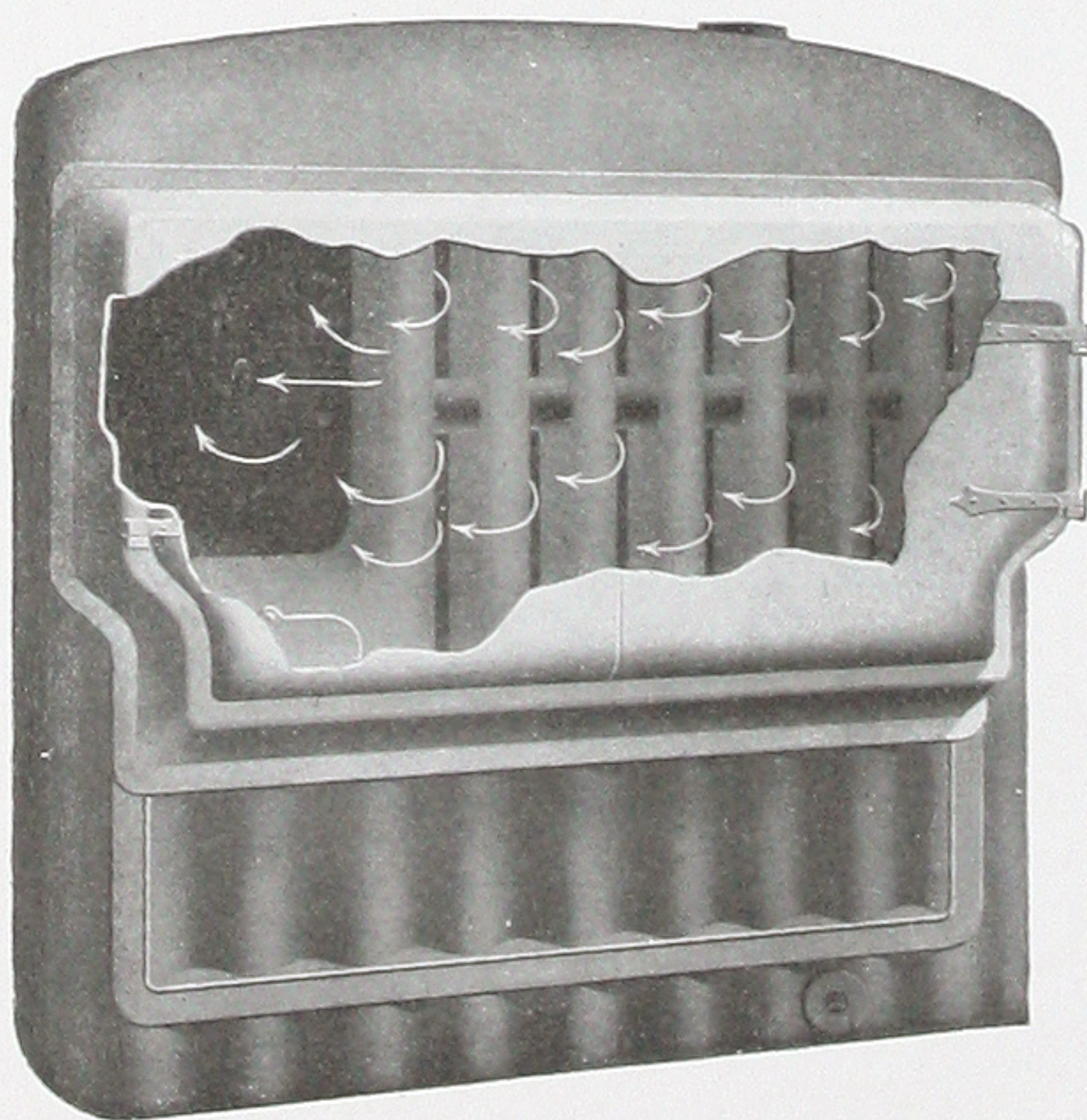
[See pages 32 and 33]

Richardson Boilers

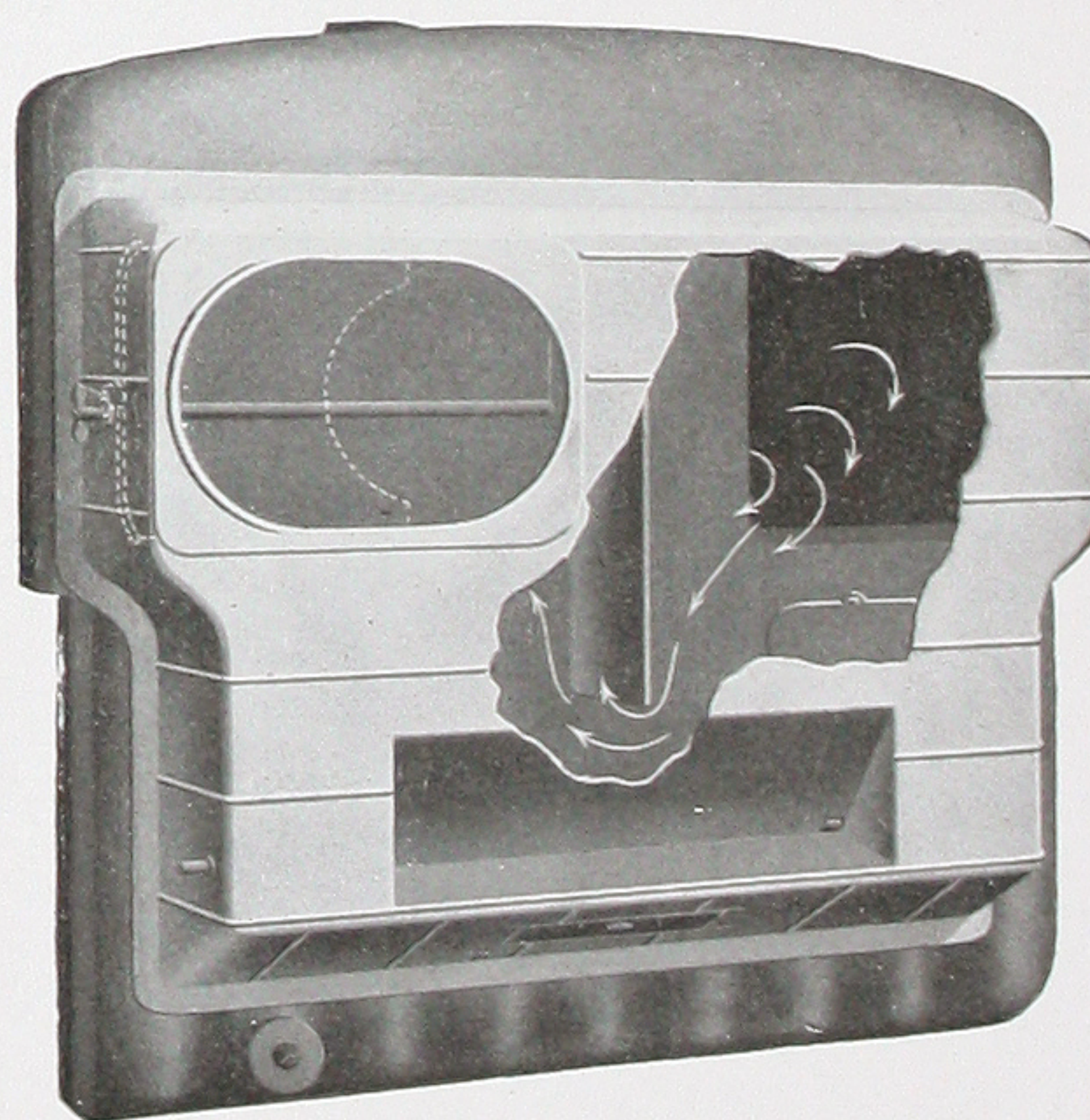
Details of Construction



Leg Section Steam or Water



End Box with Clean Out Doors



End Box with Smoke Collar

THESE "RICHARDSON" Boilers have smoke pipe outlet either right or left hand to suit conditions. Smoke box has baffle plate, check draft damper, and cleanout plate. Opposite end of boiler being fitted with large clean-out doors, making the whole interior of boiler accessible for cleaning.

The flames and gases in combustion pass through the over-hanging direct surfaces to the end of the boiler, returning the full length of boiler through the large return flue at back to the smoke box, allowing the water to absorb the full value of the heat units from the coal before they escape to the chimney.

Richardson Boilers

33

Ratings and Dimensions

Sectional Steam and Water Boilers

34-40 Side Feed Series

Pages 26 to 28

Size	Rating, Hot Water	Rating, Steam	Dimensions of Fire Chamber	Grate Area Square Feet	Width of Boiler Over All Inches	Depth of Boiler Inches	Number and Size of Flow and Return Openings—Inches	Number and Size of Flow and Return Openings—Inches	Size of Smoke Pipe Inches
	WATER	STEAM					STEAM	WATER	
634	3200	2000	35 $\frac{1}{4}$ x35 $\frac{3}{4}$	8.62	66 $\frac{3}{4}$	48	2-4	3-4	14
734	3850	2400	35 $\frac{1}{4}$ x43	10.27	74	48	2-4	3-4	14
834	4500	2800	35 $\frac{1}{4}$ x50 $\frac{1}{4}$	11.92	81 $\frac{1}{4}$	48	3-4	4-4	14
934	5150	3200	35 $\frac{1}{4}$ x57 $\frac{1}{2}$	13.58	88 $\frac{1}{2}$	48	3-4	4-4	14
1034	5800	3600	35 $\frac{1}{4}$ x64 $\frac{3}{4}$	15.23	95 $\frac{3}{4}$	48	3-4	5-4	14
840	6200	3900	41 x50 $\frac{1}{4}$	13.89	81 $\frac{1}{4}$	57	2-5	3-5	16
940	7000	4400	41 x57 $\frac{3}{4}$	15.83	88 $\frac{1}{2}$	57	3-5	4-5	16
1040	7800	4900	41 x64 $\frac{1}{2}$	17.77	95 $\frac{3}{4}$	57	3-5	4-5	16
1140	8600	5400	41 x72	19.72	103	57	3-5	4-5	16
1240	9600	6000	41 x79 $\frac{1}{4}$	21.67	110 $\frac{1}{4}$	57	3-5	4-5	16

34 series 67 inches high, 59 inches water line.

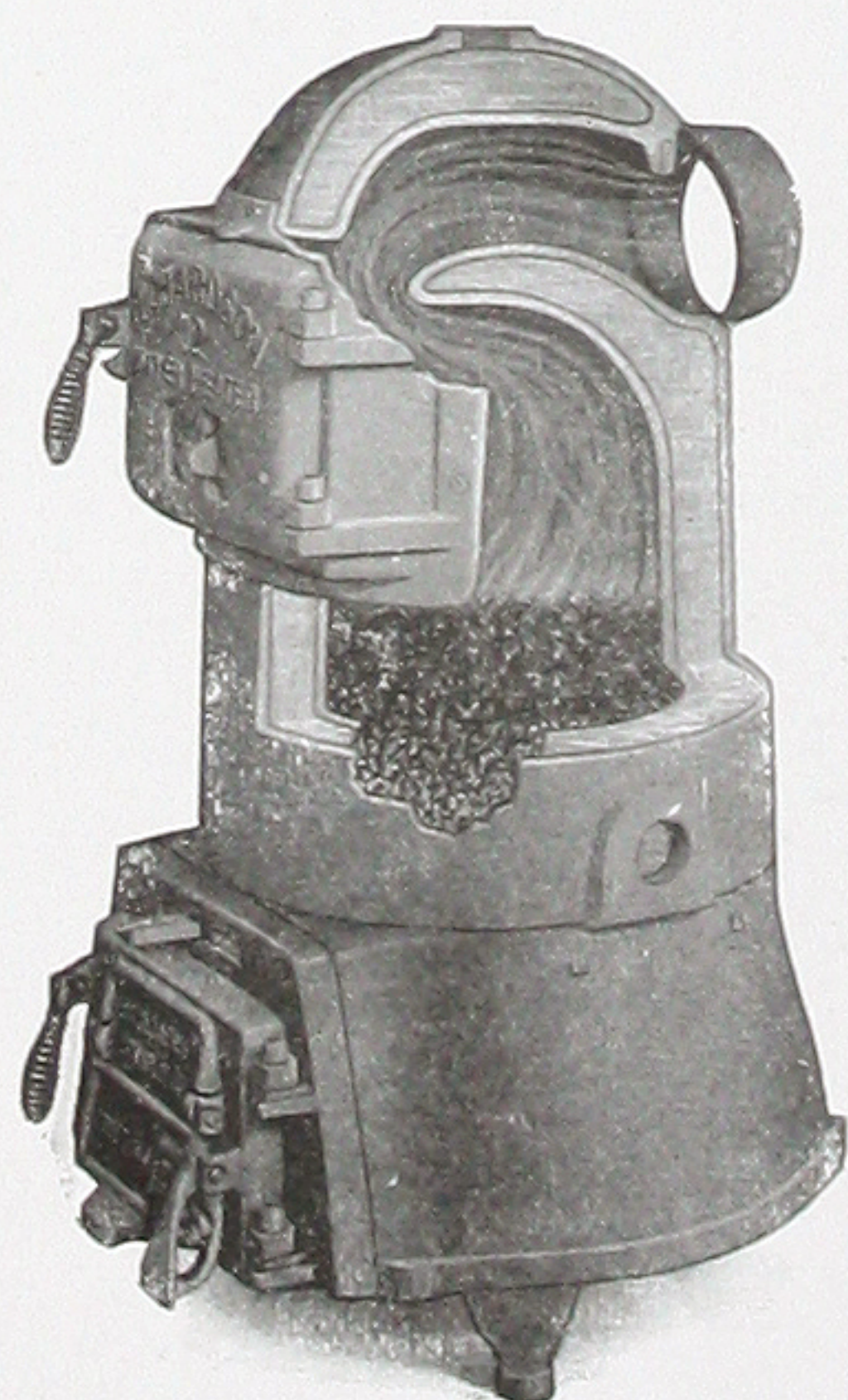
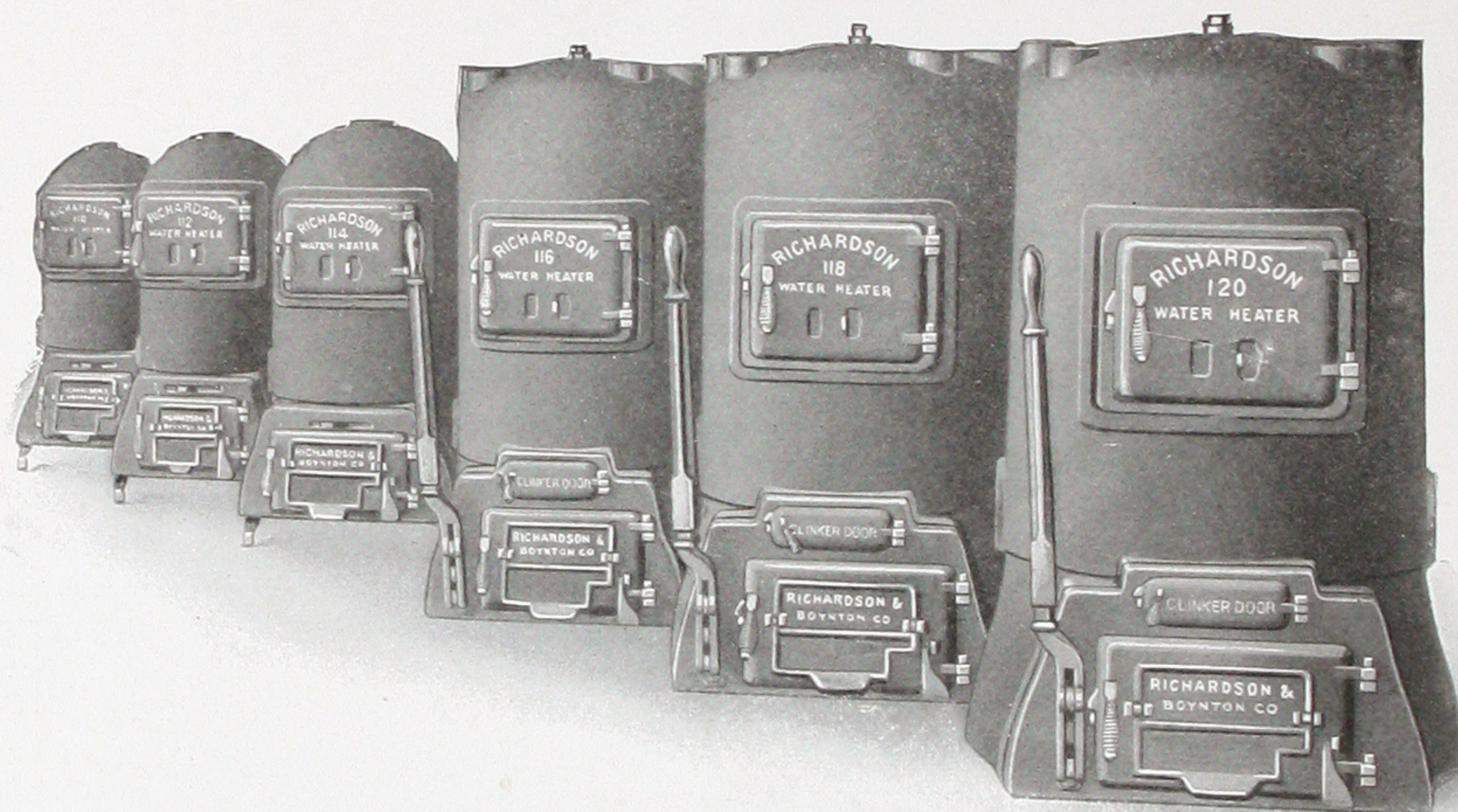
40 " 75 " " 63 " " "

OUR ratings provide that all piping (mains, risers and returns), in addition to the direct radiation to be used, shall be figured as radiating surface in estimating the size of boiler necessary.

Also allowance made for indirect, direct-indirect and coil radiation, and any unusual conditions.

Richardson Boilers

Richardson Tank Heaters



Nos. 110, 112, 114

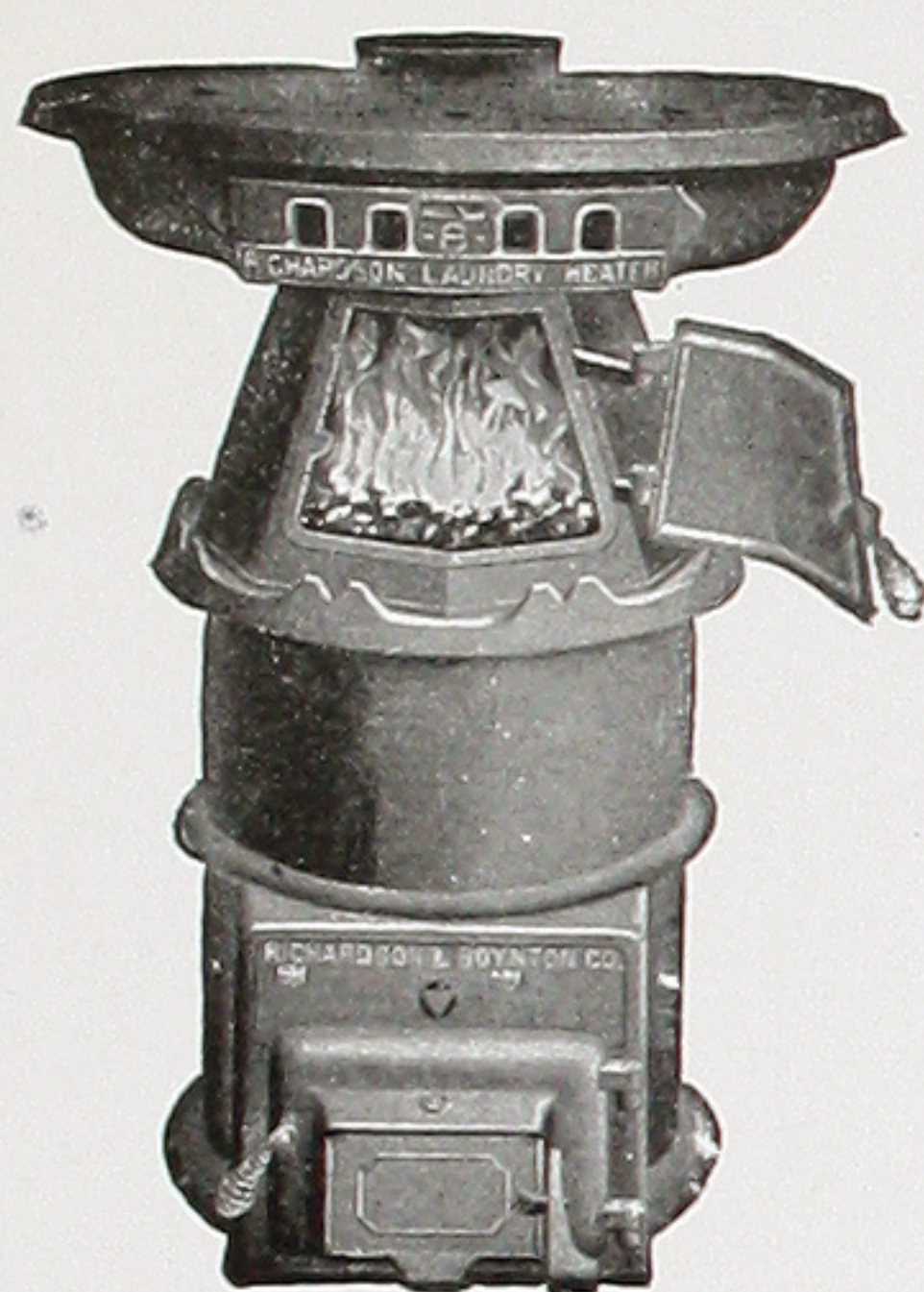
Size	Capacity in Gallons of Water	Capacity in Square Feet of Radiation	Diameter of Grate—Inches	Height—Inches	Tappings—Inches	Smoke Pipe
110	150	115	10	35 $\frac{5}{8}$	1 $\frac{1}{2}$	6
112	250	200	12	37	2	6
114	350	280	14	38 $\frac{1}{2}$	2 $\frac{1}{2}$	6
116	475	390	16	43 $\frac{3}{4}$	2 $\frac{1}{2}$	7
118	600	480	18	44 $\frac{1}{4}$	3	8
120	725	580	20	44 $\frac{3}{4}$	3	9

HOT Water Tank Heaters for Apartment Houses, Laundries, Bath Rooms, Pantries, Carriage Houses, Garages, Barber Shops, Bathing Establishments, Church Baptistries, Hotels, Restaurants and all places where an abundance of hot water is required.

The Three Smallest Sizes Also Furnished with Brass Water Sections

Richardson Boilers

35



Richardson Laundry and Tank Heaters

Hot Water Heater and Laundry Stove

No.	Height	Width	Depth
6	30 $\frac{1}{4}$ in.	16 $\frac{3}{4}$ in.	16 $\frac{3}{4}$ in.
7	30 $\frac{1}{4}$ "	16 $\frac{3}{4}$ "	16 $\frac{3}{4}$ "
8	32 $\frac{3}{4}$ "	16 $\frac{3}{4}$ "	16 $\frac{3}{4}$ "
10	34 "	20 "	19 $\frac{1}{2}$ "

Size	6.—8 irons	60-gal. boiler,	Top 24x17 $\frac{1}{4}$ in.
"	7.—8 "	90-gal. "	24x17 $\frac{1}{4}$ "
"	8.—8 "	110-gal. "	27x17 $\frac{1}{4}$ "
"	10.—10 "	125-gal. "	27x20 $\frac{1}{4}$ "



Hot Water Union Heater No. 1

For Laundry and Heating Water

Will heat 40-gallon Boiler

23 $\frac{3}{4}$ in. high, 18 $\frac{1}{4}$ in. wide, 18 $\frac{1}{4}$ in. deep
Top 21x14 $\frac{1}{4}$ inches

Hot Water Laundress Stove

Hot Water Tank Heater

No. 23 for 80-gallon Boiler. 23 in. high. Floor space 24 x 24 $\frac{1}{2}$ in. Top 16 x 24 in.



With Two Top Boiler Holes and Front Feeder

No. 12—17 in. high
21 in. wide
21 in. deep

No. 13—18 $\frac{3}{4}$ in. high
24 in. wide
23 $\frac{1}{2}$ in. deep



No. 12 For 50-gallon Boiler, Top 20 $\frac{1}{4}$ x20 $\frac{1}{4}$ in.
" 13 " 60 " " " 24 $\frac{3}{4}$ x24 $\frac{3}{4}$ "

Hot Water Laundry Heater

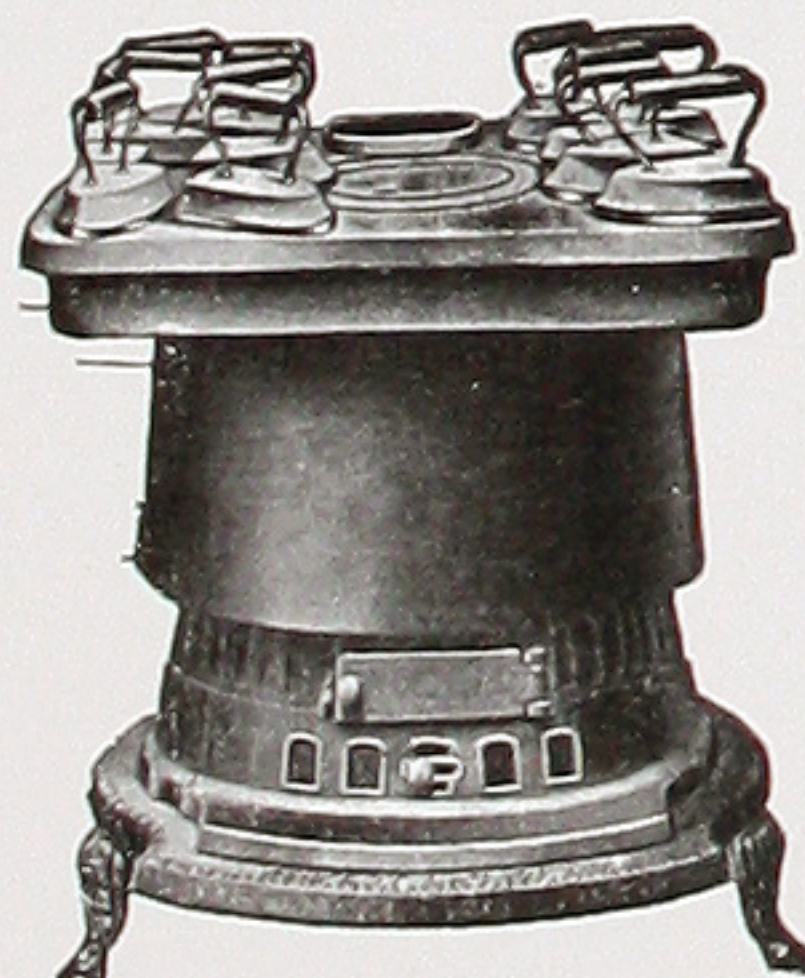
With Square Top

No. 2. 24 $\frac{1}{2}$ inches high
" 5. 29 " "

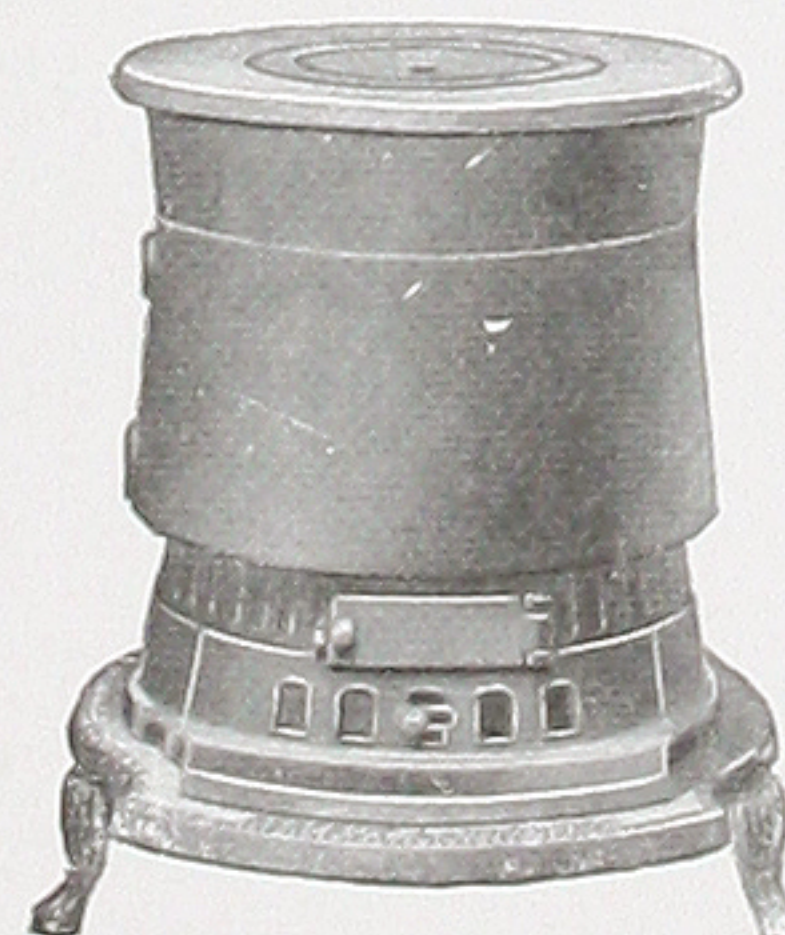
Will heat 24 flat irons at same time

Top Surface, 27 $\frac{3}{4}$ x 27 $\frac{3}{4}$ inches

1 12-inch, 1 9-inch, 4 7-inch, Boiler Holes.



No. 2. For 90-gallon Boiler or 60 sq. ft. rad.
" 5. " 200 " " " 150 " "



With Round Top

No. 2. For 90-gallon Boiler or 60 sq. ft. rad
" 5. " 200 " " " 150 " "

Hot Water Tank Heater

For Laundries and Private Houses

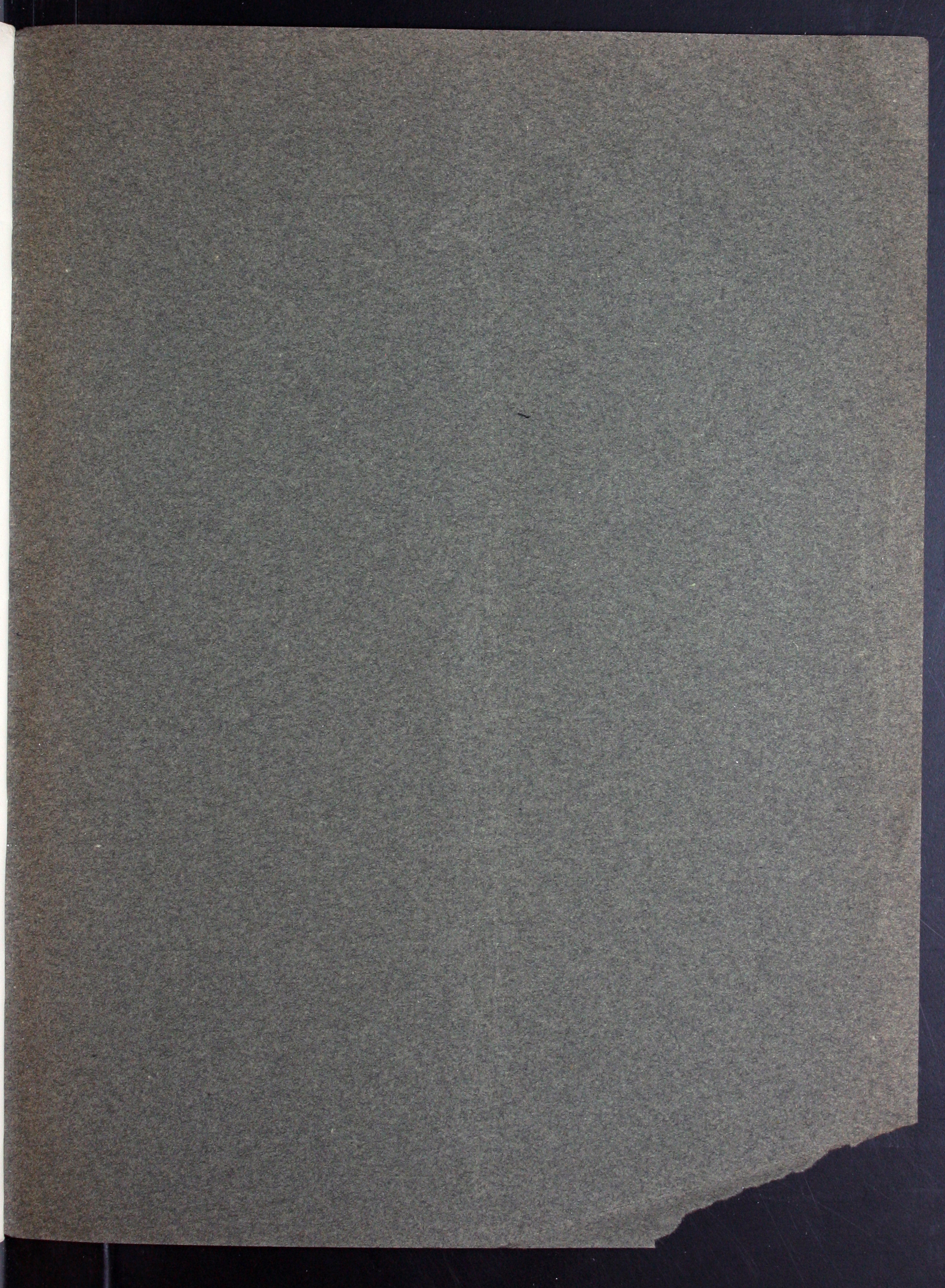
No.	Height	Width	Depth
2	24 $\frac{1}{2}$ in.	26 $\frac{1}{4}$ in.	29 $\frac{3}{4}$ in.
5	29 in.	26 $\frac{1}{4}$ in.	29 $\frac{3}{4}$ in.

Top 22 $\frac{1}{2}$ in. diameter

All of these Hot Water Laundry and Tank Heaters can be furnished with Brass Water Section, insuring clean water and absolute freedom from rust in those sections of the country where the chemical ingredients in the water produces rust when in contact with cast iron.

Richardson Boilers







THE
MILLER
PRESS
439 W 44th
LAFAYETTE
STREET
NEW YORK

